DOMESTIC ENGINEERING

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TEMBER
1942

Plumbing, Heating and Air Conditioning

Keep Your Business Going

KEEP UP THE GOOD WORK

IF YOUR BUSINESS IS IN THE DOMESTIC HEATING FIELD . . .

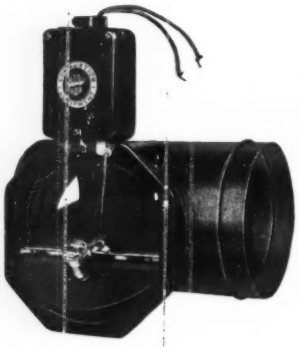
Here's Help . .

AND IT ALL HELPS THE WAR EFFORT THROUGH NEEDED FUEL CONSERVATION. In addition to contributing the utmost toward victory, domestic heating equipment dealers, furnace dealers, and plumbers must have something to do, must have something new to sell NOW! They can do both.

★ **GIVE A LOT OF HELPFUL SERVICE**

★ **SELL NEEDED FUEL SAVING TO ALL YOUR CUSTOMERS.** ***Now is the time to sell***

HOTSTREAM DRAFT-O-STATS



Sell the NEW MODEL "BM"

MOTORIZED DRAFT-O-STAT

For conversion from oil to coal, the "BM" operates from the existing two or three wire circuit. No new materials are necessary. • Converts manually fired installations to semi-automatic operation by connecting to room thermostat. • On stoker or oil fired plants, it not only automatically controls draft during heating period, but also saves additional fuel by greatly increasing the cut-out period.

ON AUTOMATIC HEATING PLANTS IT SAVES UP TO 33⅓%

This is your Job!

Oil furnaces must be changed over to burn coal. The urgency is a real war measure. Let's do the job NOW. It will help win victory—it will help keep business going.

MODEL "B" DRAFT-O-STAT
Same as Model "BM" but without motor

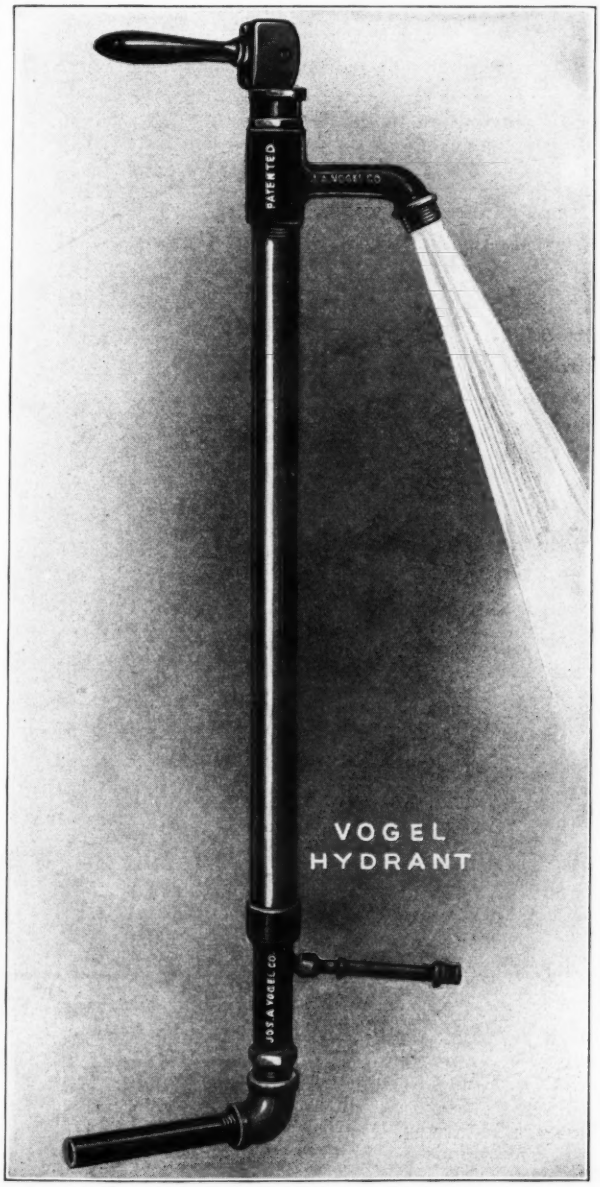
There is less time than many of us think . . . **ORDER YOUR SUPPLY OF LITERATURE TODAY**

The HOTSTREAM HEATER Co.

COMBUSTION EQUIPMENT DIVISION

8007 GRAND AVENUE • CLEVELAND, OHIO

FIRE PROTECTION for WAR PRODUCTION



Thousands of VOGEL Frost-Proof Hydrants have been installed in shipyards, munition factories, chemical plants and other industries employed in war production. They give added fire protection in event of air raids or other emergencies, because:

1. VOGEL Hydrants will never freeze, no matter how cold the weather.
2. VOGEL Hydrants seldom if ever require even minor adjustment.

On the job 24 hours a day, every day.

JOSEPH A. VOGEL COMPANY
WILMINGTON DELAWARE

VOGEL PATENTED *Frost-Proof* **Products**

DOMESTIC ENGINEERING

September *1942*

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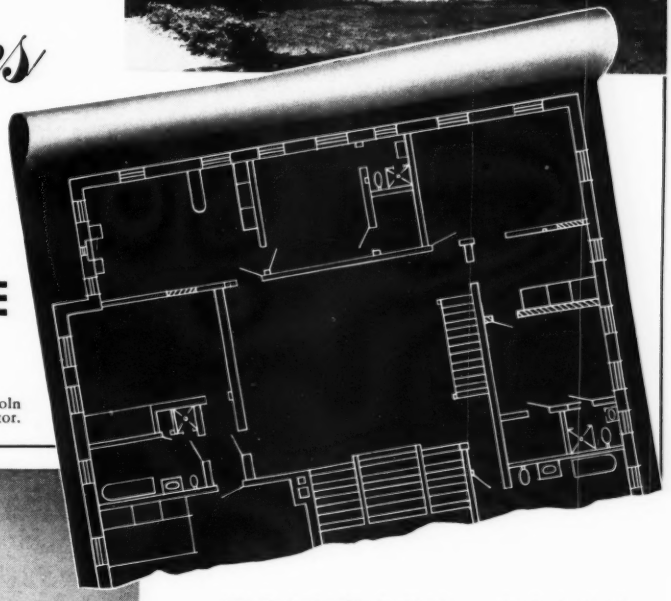
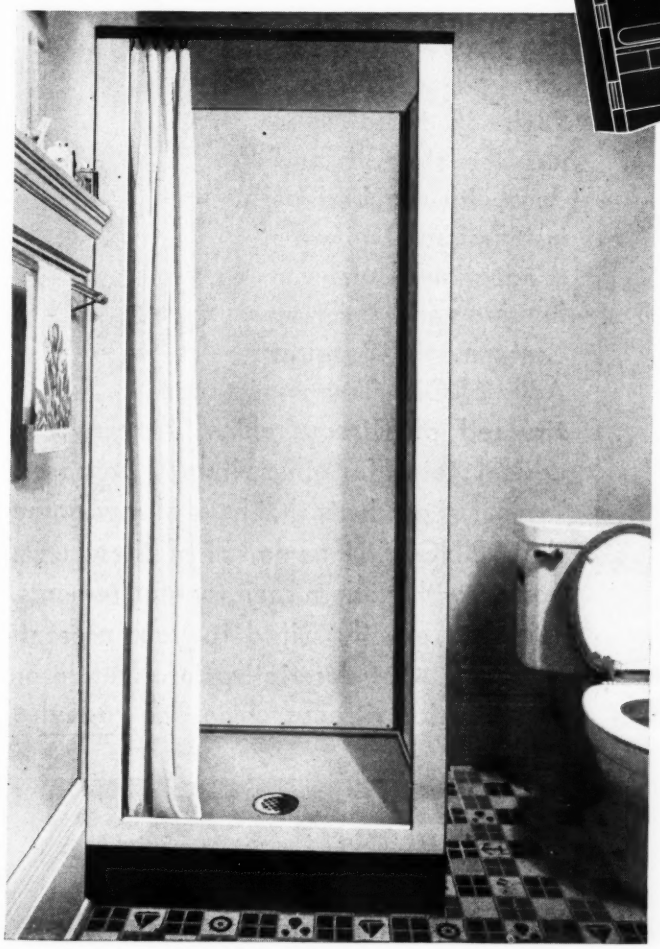
Homes for 7 Families

WHERE ONE LIVED BEFORE



One of the Weisway bathrooms in this remodeling project on Lincoln Way East, Mishawaka, Ind. Photos courtesy C. J. Mumford, contractor.



WEISWAYS SOLVE THE BATH PROBLEM

Once more Weisway Cabinet Showers give striking proof of their value in creating more living quarters out of present structures—quickly, economically.

When contractor C. J. Mumford acquired the big one-family "mansion" pictured at the top, to convert it to apartments, one of his chief problems concerned bath facilities. By the use of space-saving Weisways—complete, self-contained bath units—he was able to provide fully modern apartments for 7 families where only one had lived before.

The section of floor plan above shows how perfectly Weisways are adapted to this remodeling to create more living quarters from present homes. The new Weisway Model V, created to meet the critical material limitations of WPB, is available on priority ratings of A-10, or better, for remodeling, for new war housing, and industrial bath requirements. Write now for complete information.

HENRY WEIS MFG. CO., INC. (Est. 1876)
904 Oak St., Elkhart, Indiana

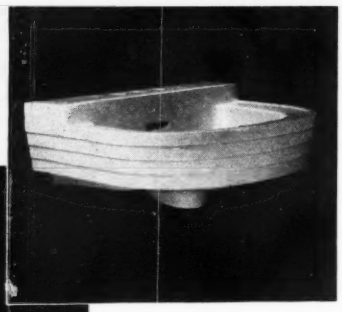
WEISWAY *Cabinet Showers*

NOT WAR "SUBSTITUTES"... BUT FIXTURES TAKEN FROM OUR REGULAR QUALITY LINE ...

ABINGDON

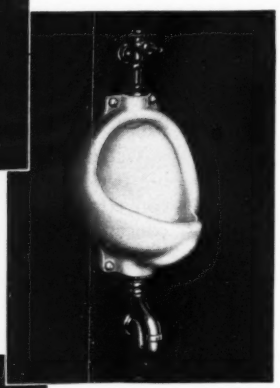
Vitreous China Fixtures

CONSERVE CRITICAL MATERIALS

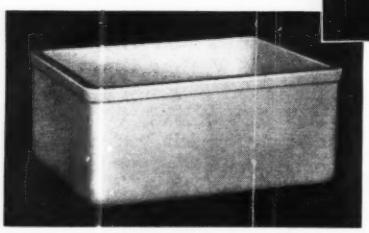


☆G140 VICTORY Shelf Back Wall Lavatory. 19x17". This modern streamlined model is at home in any setting. Its vitreous china body and highly glazed surface will withstand hard usage. Constructed to fasten securely to wall.

☆G590 ZEPHYR Unit Closet. Requires no time-consuming and costly special wall bracing or supporting work, as it is free standing. Ideal for war installations.



☆G801 PENNTON Urinal. Available for quick installation in single units or batteries.



☆G870 VITREOUS CHINA SINK. Size 20x14x7". Used singly or in pairs for war housing.

☆WHILE ABINGDON Vitreous China fixtures are serving a vital use in war-time sanitation . . . they definitely are not to be classed as war "substitutes!" Each of the units shown here is taken from the regular ABINGDON line widely recognized for the quality of its design and construction. Each of these units has the strength and durability required of installations in war production plants, war housing and military cantonments. Because ABINGDON fixtures are constructed of vitreous china, they release critical metals for other vital war purposes. Typical of products that have always borne the ABINGDON name, all of these units comply with modern sanitary requirements. They are exactly suited to your present-day jobs! Get descriptive information on this superior vitreous china line today!

ABINGDON VITREOUS CHINA FIXTURES

meet emergency alternate Federal Specifications for Plumbing Fixtures E-WW-P — 541a and PE-623 War Department Standard Specifications.

ABINGDON SANITARY MFG. CO.

Abingdon Illinois

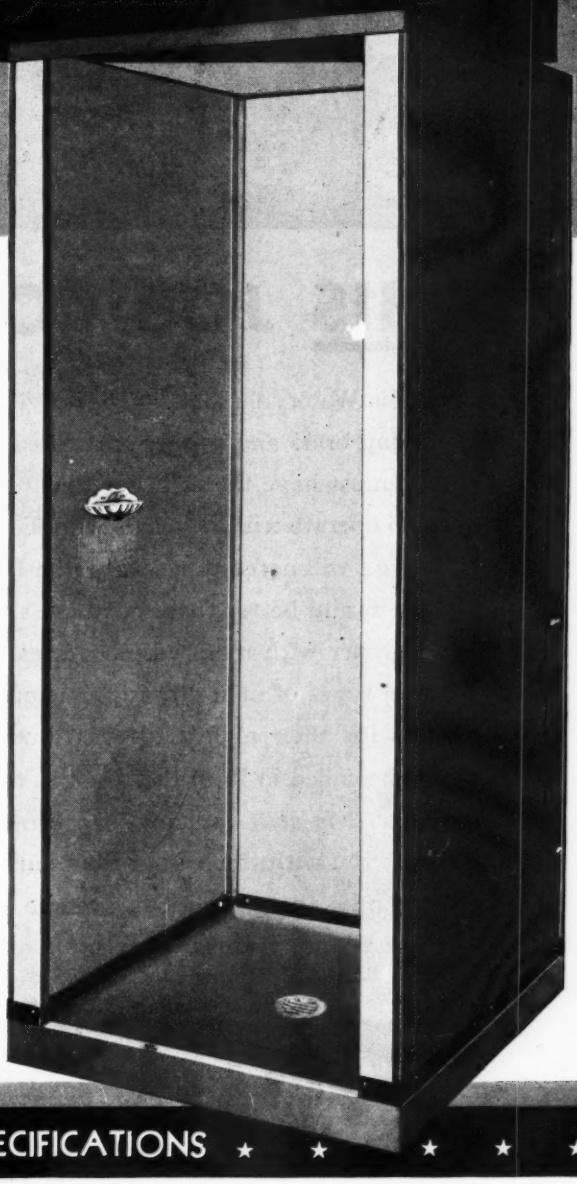
Install *MORE* Showers . . . In *LESS* Time *at Higher Profits . .*

WITH THIS

Bathe-Rite

"VICTORY" SHOWER CABINET . . .

"Quality-Built by Bathe-Rite"



You'll easily meet your War Housing demand for SPEED in modern Shower installations with a BATHE-RITE VICTORY Cabinet . . . And at a Profit!

First, you save installation time! Typical BATHE-RITE features permit assembly in 25% less time — with the Separate Mounting Frame and Friction Joint Connection. And you have an attractive, high quality, trouble-free installation that will boost your reputation for fine work. Each VICTORY Shower Cabinet is conveniently packaged for quick and easy handling on the job. Each is completely self-contained, requires no special wall or floor preparation, no caulking or cementing to waste time in installation, or clean-up after the job is finished. Just connect to piping, insert a few bolts, tighten a few nuts and the Shower is ready for use.

MEETS WARTIME SPECIFICATIONS

The BATHE-RITE VICTORY Cabinet complies in all details to U. S. War Department Specifications (P19A, P34) and Federal Housing Authority Specifications. Low in cost, modern in design, carefully engineered for MASS PRODUCTION, using the absolute minimum of critical materials they have been bought for thousands of housing units on Government Projects.

TIMED DELIVERY

We can assure delivery in any quantity *When* and *Where* you need them.

★ 3 SIZES . . . . . 30 x 30 x 75"
32 x 32 x 75"
32 x 32 x 80"

BATHE-RITE *division*
MILWAUKEE STAMPING COMPANY
804-S South 72nd Street
MILWAUKEE, WISCONSIN

WRITE TODAY *for* PRICES *and* SPECIFICATIONS ★ ★ ★ ★ ★

THIS JOB COMES FIRST!

And the Waterville Division of Scovill is doing its full share.

Today brass and copper are critically scant. The needs of the armed forces must have the call. For that reason your Government has asked you to operate with restricted supplies of plumbing products. We think that you will agree that Waterville Division has served you as well as the best, and better than most. We shall continue to do so.

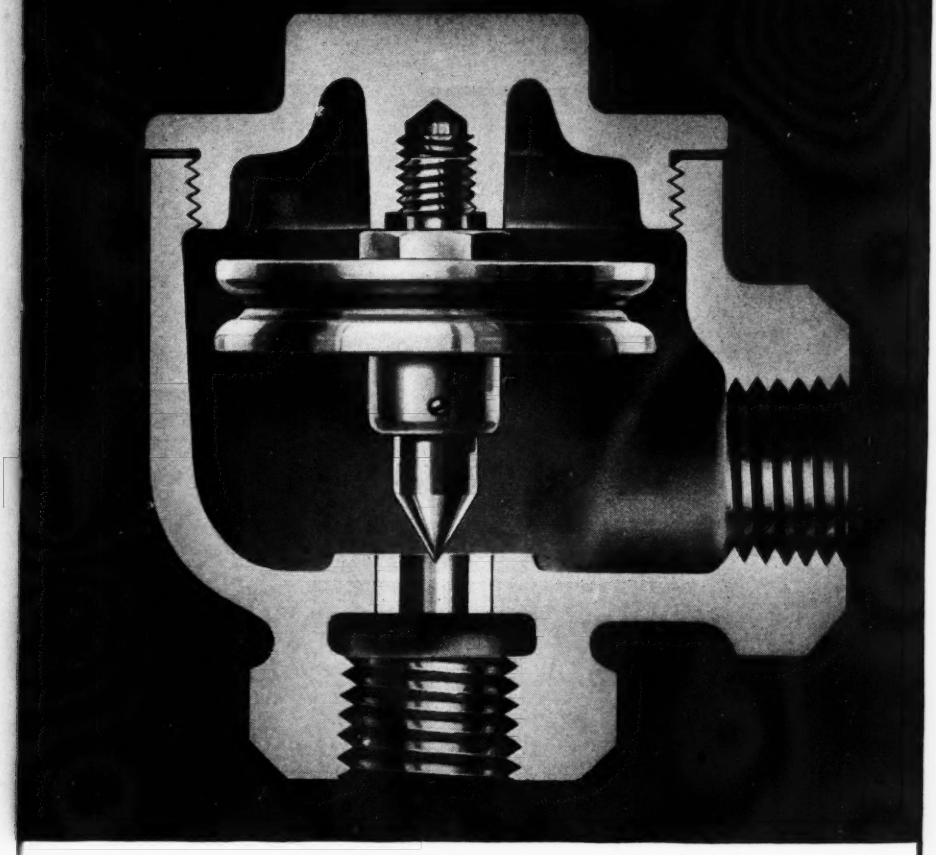
Together with materials shortages there are developing scarcities in certain types of man-power. Some of our Field Men are needed in our plants for their ability to contribute to the War Effort. These men must be called in from the Road as needed.

Scovill is still in the Plumbing business, and will continue to supply you with the best in Plumbing products and selling helps to the very limits that conditions permit. Your interests are our concern—we ask your continued cooperation and support.

SCOVILL

SCOVILL MANUFACTURING COMPANY
WATERVILLE DIVISION
GENERAL SALES
WATERVILLE, CONN.

SCOVILL
Masters of Metal



Webster 702HF Radiator Trap.

To Save Critical Materials

"Old Ironsides"

It took months of planning . . . But, Webster Engineers are ready with the "Old Ironsides" line of radiator traps and valves conforming with the simplification program of the War Production Board. Cast iron bodies and bonnets. Female inlet and outlet connections. Three sizes of traps—½" for 200 sq. ft.; ¾" for 400 sq. ft.; ¾" for 700 sq. ft. Two sizes of valves—¾" and 1", both in angle body—with wheel handle standard; with lockshield handle for institutions. The traps employ the time-tested Webster thermostatic element, a double diaphragm of phosphor bronze fully compensated for pressure. The valves use the proven Webster mechanism, fully meeting the specification for spring-retained packing... The "Old Ironsides" line uses the minimum of critical materials; saves machine-tool hours for direct war work; keeps steam available for heating war production plants, Army hospitals, etc. "Old Ironsides" traps and valves will be available on appropriate priority.

Essential repairs for existing Webster System installations are available to our customers on A-10 priority, under provisions of Emergency Plumbing and Heating Repair Order P-84 of the War Production Board. Orders should be limited to actual repair needs.

WARREN WEBSTER & COMPANY

CAMDEN, N. J., EST. 1888, PIONEERS OF VACUUM STEAM HEATING

LEAN, savage warbirds . . .

60 thousand in 1942 . . .

125 thousand in 1943 . . .

That is America's promise to the Victory Program—and America is going to beat that promise.

It calls for new construction at record-breaking speeds . . . mile-long bomber plants, the largest in the world.

Heating problems presented by the new building program depend for their solution on the heating lessons learned in peace-time.

Fifty years of experience taught America the practical economy of Webster Systems of Steam Heating. Built around all the natural advantages of steam as a heating medium—flexibility, speed, safety. Used successfully in more than 75,000 buildings.

That is why architects, engineers and heating contractors working on war construction depend on Webster Systems of Steam Heating.

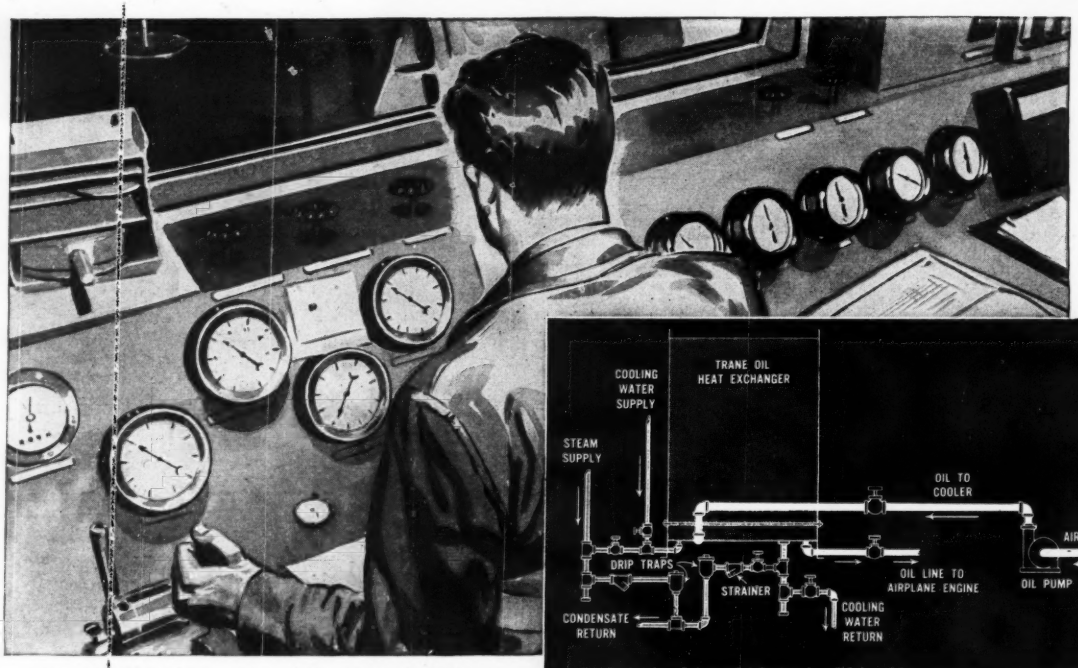
While Ordnance production has the first call on our facilities, we are working day and night to make sure that Webster Steam Heating Equipment is available for use wherever it will help the war effort.

Let our experience serve you now.

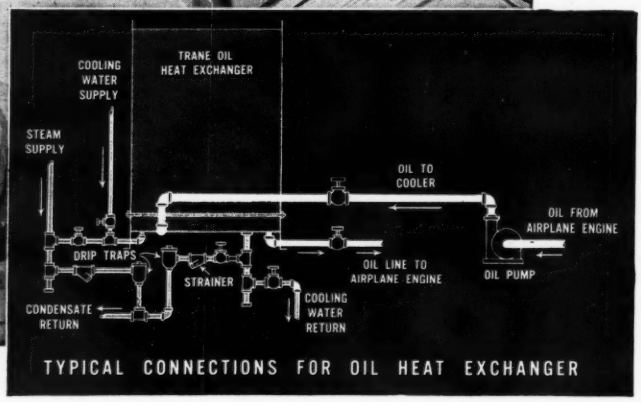
Warren Webster & Company, Camden, N. J.
Representatives in 65 principal Cities

Webster
Steam Heating

This is one of a series of advertisements that will tell the public of the part that Webster Steam Heating and the Webster organization plays in the war effort . . . appearing regularly in leading business, industrial, engineering and technical publications.

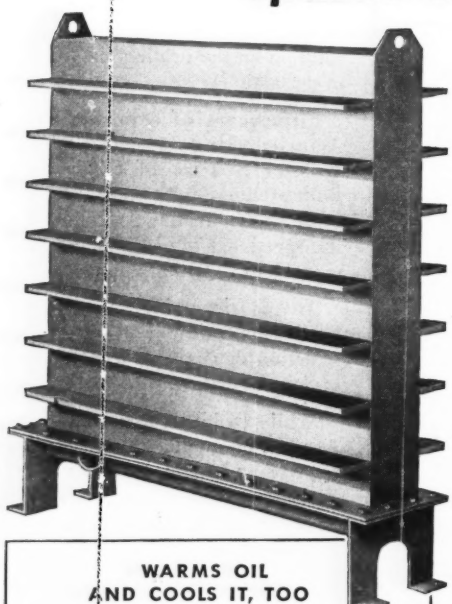


Showing piping connections which make it possible to use the exchanger for warming oil as well as cooling it.



NEW TRANE OIL HEAT EXCHANGER

speeds aircraft engine testing



WARMS OIL AND COOLS IT, TOO

This Trane Oil Heat Exchanger warms the oil with steam, cools it with water. Externally ribbed to enable the flat surfaces to withstand the necessary pressure without excessive weight. This represents another of the many problems solved through the use of Trane heat transfer equipment of both standard and special design.

AN IMPORTANT producer of airplane engines needed a combination unit to control oil temperature of engines on test.

During the starting-up period, the unit was required to deliver warm oil to the engine, and during the running period the unit was required to hold the temperature below a certain limit.

Specifications called for a light, compact, durable heat exchanger that would be easy to mount and take down for cleaning. It had to have a casing that would withstand 30 pounds oil pressure, and, finally, only a limited amount of cooling water could be used.

The Oil Heat Exchanger illustrated here was designed by Trane engineers to fill the requirements. Going a step beyond the letter of the specifications, Trane engineers produced a unit that could be thoroughly cleaned without disconnecting any of the heating, cooling, or oil line piping.

Ask the Trane Man

The facilities of the Trane design engineering department are at the disposal of government and industry in the design of new and refined equipment to meet the many demands created by a nation at war. Because standard Trane heating, cooling, drying, air handling and related products are used in so many fields of industry, Trane engineers have a thorough knowledge of the equipment requirements of industry. Your nearby Trane field office will be glad to furnish additional details.

THE TRANE COMPANY

LA CROSSE, (AIR) WISCONSIN

Also TRANE COMPANY OF CANADA LTD., TORONTO, ONTARIO

HEATING • COOLING • AIR CONDITIONING EQUIPMENT FROM 85 OFFICES

Makes Your Domestic Hot Water "Good Tempered"

d.
o. 3 . . .

WATTS Water Temperature CONTROLLERS

- **Reduce *Water Wastage***
- **Cut *Hot Water Costs***
- **Prevent *Scalding, Corrosion, Liming.***

o. 71
MPERING
ALVE.

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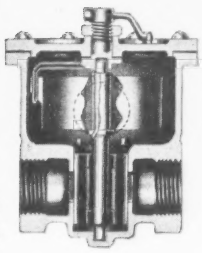
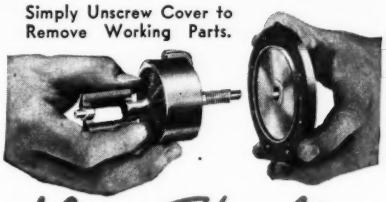
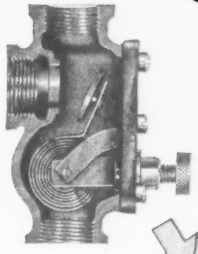
d 1".
alibrated
m 80° to
0°.

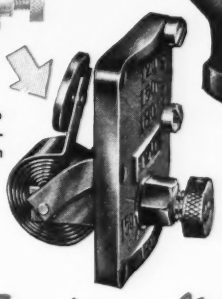


Simply Unscrew Cover to Remove Working Parts.





Adjustable to Water Outlet Temperatures Between 120° and 180°.



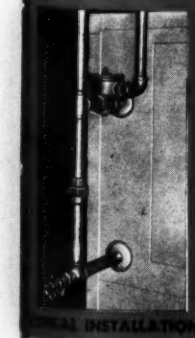
No. 73
CIRCULATION TEMPERATURE CONTROLLER
Sizes: ¾" to 2".

for Tankless Heaters

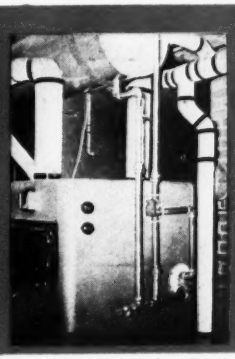
Watts No. 71 Tempering (Mixing) Valve . . . installed between storage tank, or tankless heater, and outlet . . . mixes cold water with the hot as it leaves the storage tank, or tankless heater, and delivers uniformly tempered water to the fixtures. The temperature of the delivered water may be accurately determined for the valve is calibrated and adjustable to fixed temperatures from 80° to 200°. On storage systems this valve gives the system the equivalent of greater useful hot water capacity because cold water is added to the hot as it is drawn. Savings in hot water are savings of money and fuel. The valve has only ONE moving part . . . a double gate . . . which controls the flow of both the hot and cold water and acts as a mixing chamber. Mechanism easily removed for cleaning or inspection.

for Indirect Heaters Only

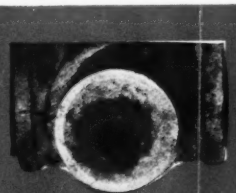
Accurate control of tank water temperature is a recognized need for installations served by indirect heaters. Corrosion and liming, aggravated by water temperatures over 140°: 160°, lessen tank life expectancy; reduce efficiency in piping and heating coils; and may cause costly repairs and replacements. Uniform, safe, lower water temperatures reduce heat wastage and fuel wastage. In this valve Watts employs an entirely NEW method of tank water temperature control, for this No. 73 Controller, is designed for placement in the hot water line between the indirect heater and the tank. No water can pass into the tank at a temperature in excess of that at which the Controller is set. No water, therefore, need reach the OUTLETS HOT ENOUGH TO SCALD OR BURN. The whole mechanism is mounted on the cover and, as illustrated above, is easily removed by simply unscrewing the cover.

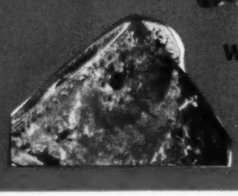


ELIMINATES SCALDING



Typical No. 73 Installation





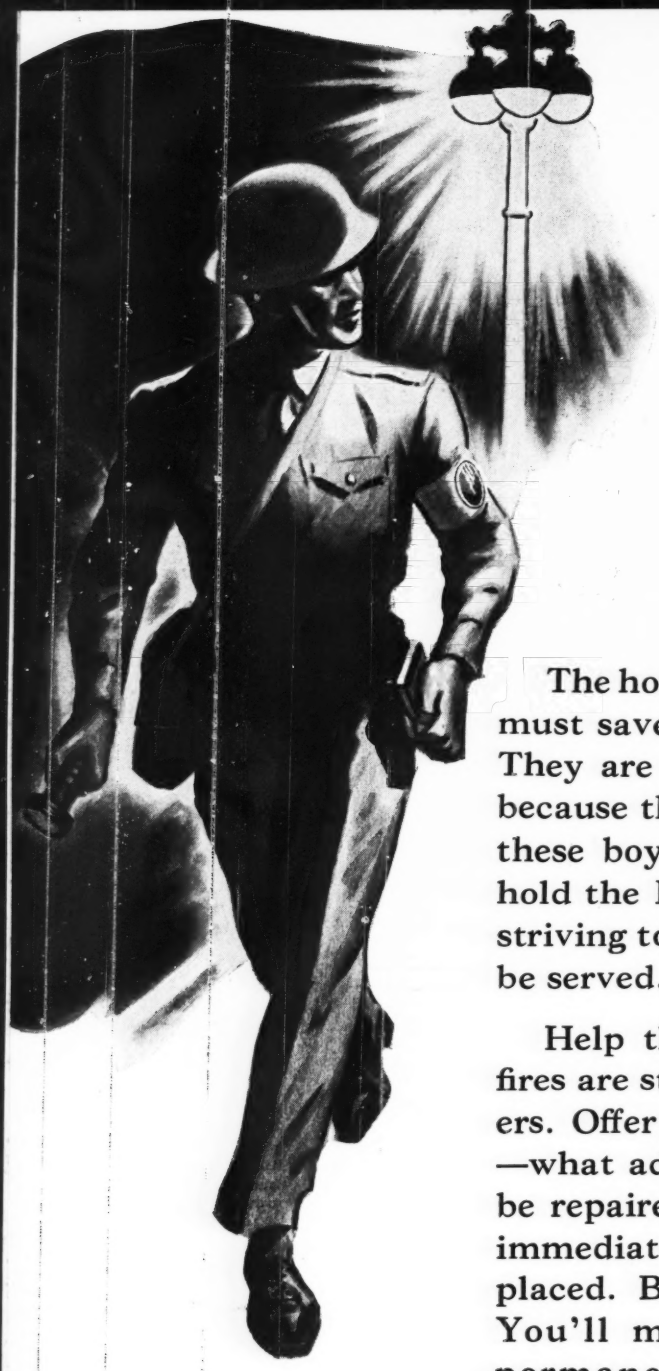
Water Temperature Control Reduces Corrosion, Liming.

ad No. 3 . . . in a series of FIVE . . . designed to define and illustrate the FIVE manufacturing classifications of the complete Watts LINE. Ad. No. 1 dealt with Watts RELIEF VALVES; No. 2 with Watts PRESSURE REGULATORS AND STRAINERS.

Next Month . . . Watts Boiler Water Feeders and Low Water Cut-offs

A SIGN OF QUALITY • A SIGN OF THE TIMES •

WATTS REGULATOR CO. LAWRENCE, MASS.



In this coming War-Winter be your neighbors' HEATING WARDEN

The home owners you serve know now that they must save fuel. This fuel may even be rationed. They are eager to give their share for Victory because their sons are at the Big Front, and while these boys are away, the home folks are out to hold the Home Front. They are stinting, saving, striving to do without in order that the guns may be served.

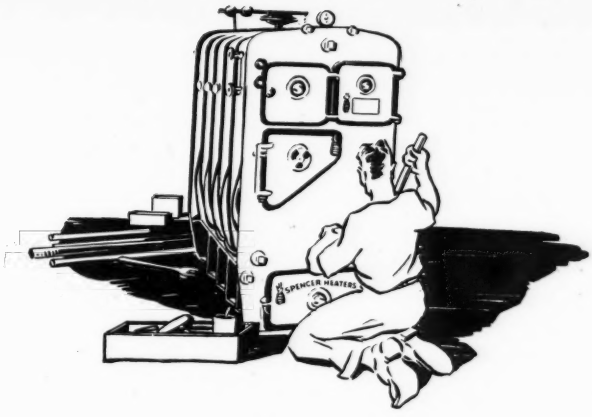
Help them in their efforts. Don't wait until fires are started. Start today to inspect these boilers. Offer your help. You know every step to take —what advice to give. Conserve boilers that can be repaired. Most important of all, recommend immediate action where boilers should be replaced. Be your community's Heating Warden. You'll make many permanent friends and customers.

Display this sign. We'll gladly send it to you free.

SPENCER HEATER
Division—The Aviation Corporation
Williamsport, Pa.

Be your Neighborhood Heating Warden

DISPLAY THIS SIGN ➡



Replace All Old Rickety Boilers—NOW!

Immediate Deliveries of SPENCER *Magazine Feed Heaters Are Permitted For Replacement Needs in Any Area*

You know Spencers and what they can do to conserve fuel and save the pocketbook. You know they furnish the most comfortable heat in the world—and the cheapest—whether the heating job is for the average home or the large building. They stoke automatically—without motors or moving parts—small size, low cost anthracite or coke. They require attention only once in 24 hours—in milder weather once in two days. And they can easily be equipped with the Spencer Victory Summertime Hot Water Hook-up. Best of all—your customers can lay in a full winter's supply of fuel—right now.

Remember—there is a complete Spencer line—in normal times always a full inventory of boilers, from the biggest "A" Type (42,500 feet, steam) to the "C" and "K" boilers for large and small home use. Ask for catalogs.

SPENCER HEATER
Division—The Aviation Corporation
Williamsport, Pa.

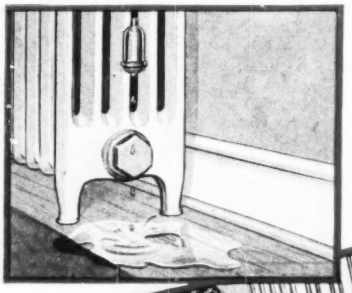
SPENCER BOILERS

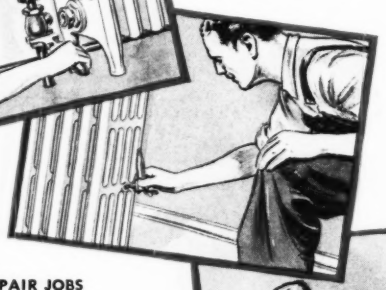
A Size and Type for Every Fuel and Building

REPAIRS AND MAINTENANCE

Under the provisions of Order P-84, our government has authorized the sale of heating and plumbing equipment for repair and maintenance purposes. This is full recognition of the urgent need for fuel-thrifty heating and the health protection of proper sanitation. It is your opportunity to keep the ball rolling until the restoration of normal business.

WHEN REPLACING OLD VALVES, SELL A COMPLETE HOFFMAN VACUUM SYSTEM





When repairs are necessary, it is just as easy to do a complete job as to settle for a half-baked one.

For example, if a customer needs new radiator valves to replace leaking, fuel-wasting old-timers, there's your opportunity to sell him a complete Hoffman Vacuum System. You make a better profit and your customer takes a profit in lower heating costs and in greater comfort.

Installing a Hoffman Vacuum System is genuine cooperation with our war program. Hoffman Vacuum Valves contain no more metal than the cheapest air valve—but the job they do is infinitely superior. Fuel of all kinds plays a vital part in war production—Hoffman Vacuum Valves help conserve it.

Always remember, too, that Hoffman Vacuum Valves are the valves with the Double Air Locks, Six Speed Venting Adjustment and Short-tongue Siphon. If you haven't complete information, see your jobber or write to the Hoffman Specialty Company, Dept. RX-9, 1001 York St., Indianapolis, Indiana.

THESE FOUR COMMON REPAIR JOBS ARE YOUR OPPORTUNITY

Leaky or inoperative radiator valves, broken-down boilers or faulty main vents give you an opportunity to turn a trouble job into a real profit job. Vacuumizing the system by installing Hoffman Vacuum Valves steps up efficiency and lowers fuel consumption. Makes money for you and saves it for the owner.

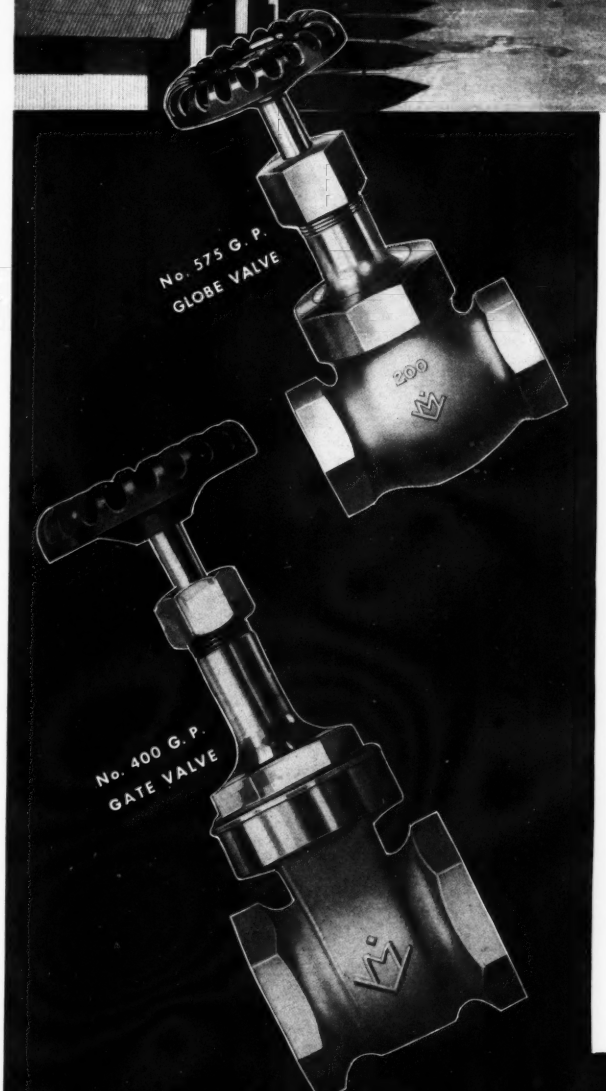
So do the job right, with Hoffman Vacuum Valves.

HOFFMAN VALVES TRAPS PUMPS

Hoffman Steam and Hot Water Specialties are sold everywhere by leading wholesalers of Heating and Plumbing equipment.

ON THE JOB • • • •

Official Marine Corps Photograph



MILVACO "APPROVED" BRONZE VALVES

America's fighting men today enjoy comforts and conveniences which, twenty years ago, would have been considered luxuries. Every contribution of modern science and engineering, which may be practically employed for the benefit of the men in training at home and on active duty abroad, is utilized for their comfort.

The morale of the fighting forces is vitally important and wherever the fighting men are assembled, and proper housing facilities can be provided, comfortable quarters are one of the first requisites of high morale.

That's why MILVACO "Approved" Bronze Valves, so popular with the plumbing and heating trade, are so widely used wherever the armed forces are housed. Many of the nation's camps and cantonments, at home and abroad, depend upon the accurate, lasting efficiency of MILVACO Valves.

We appreciate your orders and the opportunities you give us to be of service to you.

TO OUR CUSTOMERS

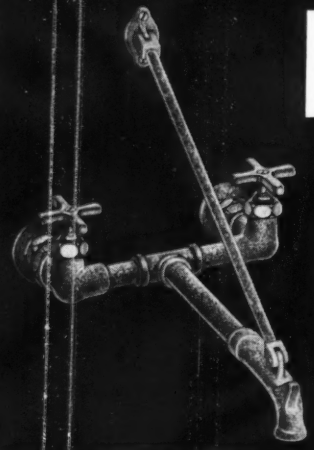
Because of the demands made upon us by the National Defense Program we are not able to maintain regular service. We all understand why Defense MUST come first . . . . for the welfare of the nation and ourselves . . . . and to that end we must all strive. Your patience and fine cooperation assure us you do understand . . . . and we assure you we do sincerely appreciate your business.

MILWAUKEE VALVE CO.
MILWAUKEE, WISCONSIN
HEATING SPECIALTIES and APPROVED VALVES
VALVES AND FITTINGS FOR THE OIL INDUSTRY

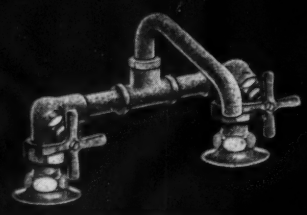
New Line OF CAST IRON TRIM

CE-32-395 "Rainier" gooseneck spout supply fitting with brass trimming units. Blade lever handles, chainstay, chain and stopper.

CE-4667 Two valve shower with brass trimming units, "Economy" shower head with soap dish.



CE-32-898 Service sink supply fitting with brass trimming units. Spout has pail hook and brace.



CE-32-795 Double counter top faucet with brass trimming units. Has swinging spout.

CE-32-390 "Rainier" lavatory supply fitting with brass trimming units. Has lever handles, chainstay, chain and stopper.

OUR Country's rapidly expanding war production program demands copper and tin in ever increasing quantities. To conserve these vital metals, Crane laboratories have developed a new line of trim made largely of cast iron, galvanized to prevent rusting. This high quality, practical line of faucets, spuds, wastes, and other fittings assures home owners that the plumbing of today will operate efficiently and satisfactorily.

This new line of trim meets the requirements of War Department Specification PT-623 and may be used for new construction or replacements in domestic and industrial buildings as well as camps, cantonments and hospitals.

CRANE

CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO

VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

HOW AND WHY
WILLIAMS' TOOLS AID WAR PRODUCTION

J. H. WILLIAMS & CO., *Drop-Forgings and Drop-Forged Tools*, BUFFALO, N. Y.

DATA ON "VULCAN" CHAIN PIPE TONGS

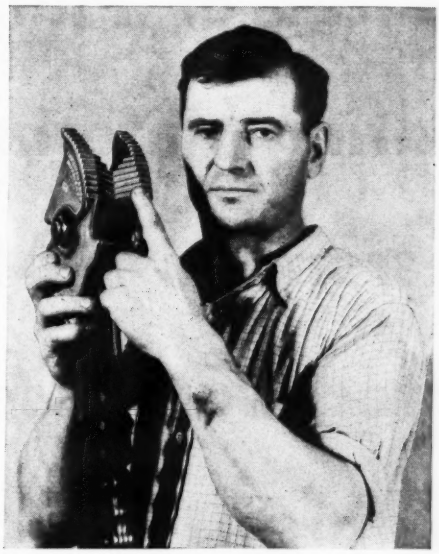
There are 6 types of Williams' Tongs, each offering certain advantages for particular classes of work. A knowledge of the features of these various types will enable users to better select the most efficient and economical type for the work at hand.

VULCAN SUPERIOR": A universal service tong for *both* pipe and fittings. Has Reversible pipe-and-fittings jaw. Seven sizes, up to 12" capacity.

VULCAN": The original "VULCAN" Pipe Tong—still the favorite oil-field tongs for general work. Chain swings from center and can be used on either side of the jaw. Eight sizes, up to 18" capacity.

VULCAN SUPERTONG": Same design as "VULCAN" but forged from alloy and high-tensile steel. Provides 50% greater strength than "VULCAN" with no increase in bulk or weight. Eight sizes, up to 18" capacity.

IMPROVED VULCAN": Same as "VULCAN" except jaws are double-ended and reversible, providing double service life. Seven sizes, up to 12" capacity.



The "V" recess in "Vulcan Superior" jaws assures quick, positive grip on fittings.

Types of "Vulcan" Chains

While "VULCAN SUPERIOR" and "VULCAN" Tongs are furnished with *either* Flat Link or Cable Chain, all other types have Flat Link Chain only.

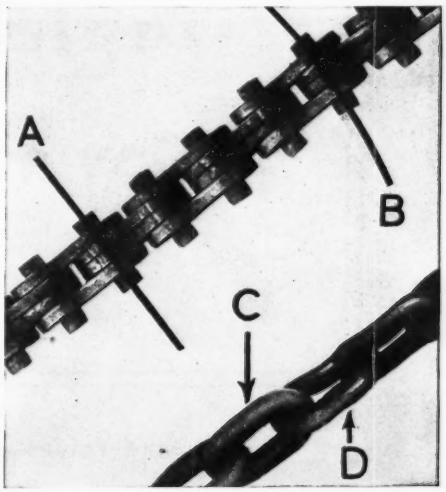
There are three types of Flat Link Chains for Williams' Tongs—"STANDARD", "XTRA-STRONG" and "SUPERCHAIN". "Standard" Chains are regularly furnished with all except "Supertongs" but "Xtra-Strong" Chains, providing approximately 40% greater strength, can be supplied at additional cost. "VULCAN SUPERTONGS" are regularly furnished with "Superchains". Every "VULCAN" Chain, regardless of type, is individually *proof-tested* on a standard tension machine to two-thirds of its breaking strain.

Use and Care of Tongs

In using Chain Pipe Tongs the best gripping position is that which is midway of the jaw teeth, or rearward therefrom. The bending of the tong handle under load is not evidence of a defect. Such bending is intended to act as a warning and "safety valve" in advance of breakage of chain, which would incapacitate the tool.

In Flat Link Chains on tongs, an occasional inspection of the first two or three rivets and links adjacent to the swinging, or anchor link should be made, since the load is greatest at that point. Badly bowed, or curved rivets indicate that the chain has been loaded almost to breaking strength and is probably unsafe.

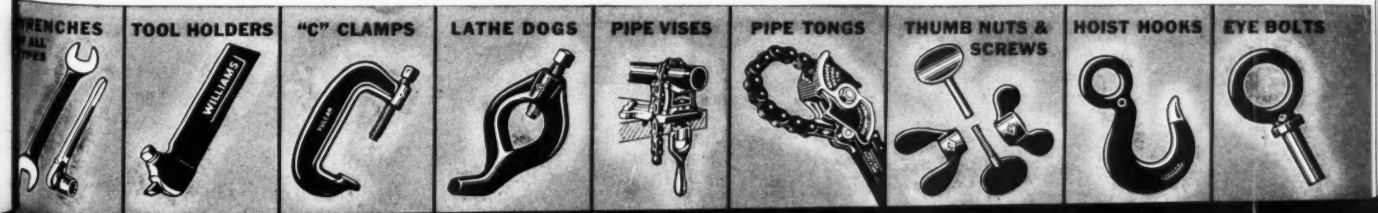
In Cable Link Chains, the links give warning by stretching and pulling "rigid" if the breaking point is approached.



A. Straight rivet indicates chain is safe.
B. Curved or bowed rivet—unsafe.
C. Safe link indicated by normal shape.
D. Link stretched or pulled "rigid"—unsafe.

WILLIAMS
SUPERIOR DROP-FORGED TOOLS
Headquarters
for over half a century for
DROP-FORGINGS and DROP-FORGED TOOLS

Sold by Leading Industrial Distributors Everywhere



Distributors of Plumbing and Heating Materials can secure from us VALVES, permitted for essential replacement and for Government construction

Hammond Valves—Standard of value with the trade for over 30 years

Write for new 1942 Valve Bulletin No. 140

VALVE DEPARTMENT

HAMMOND BRASS WORKS

Hammond, Indiana

HAMMOND VALVES

Look for the (H) on the body — (H) the mark of a dependable value

Sloan Ads are YOUR Ads

They rarely need attention... BUT they deserve it now!
● The micrometers, used in the manufacture of Sloan Flush Valves, rarely need attention. But micrometers are mechanical instruments and are subject to wear. Knowing this, we of Sloan Valve Company do not take our micrometers for granted. We keep them in constant accuracy.
The same should apply to you and your Sloan Flush Valves. Just because your Sloan Flush Valves have given you years of trouble-free service, don't take them for granted. Check them periodically to see that their operation is accurate. Remember, a single small part for replacement is easier to get than an entire new flush valve.
So we urge you to call in a master plumber today and have him check everyone of your Sloan Valves. Probably many of them will need no attention whatever. Probably only a few repairs will be required. But you need to have the assurance that your every Sloan Flush Valve is working perfectly, still as good as new and ready for many more years of trouble-free service.
All the material used in the manufacture of your Sloan Flush Valves is on the critical list. Conserve vital metals by proper maintenance.
SLOAN VALVE COMPANY
4300 West Lake Street, Chicago
SLOAN FLUSH VALVES

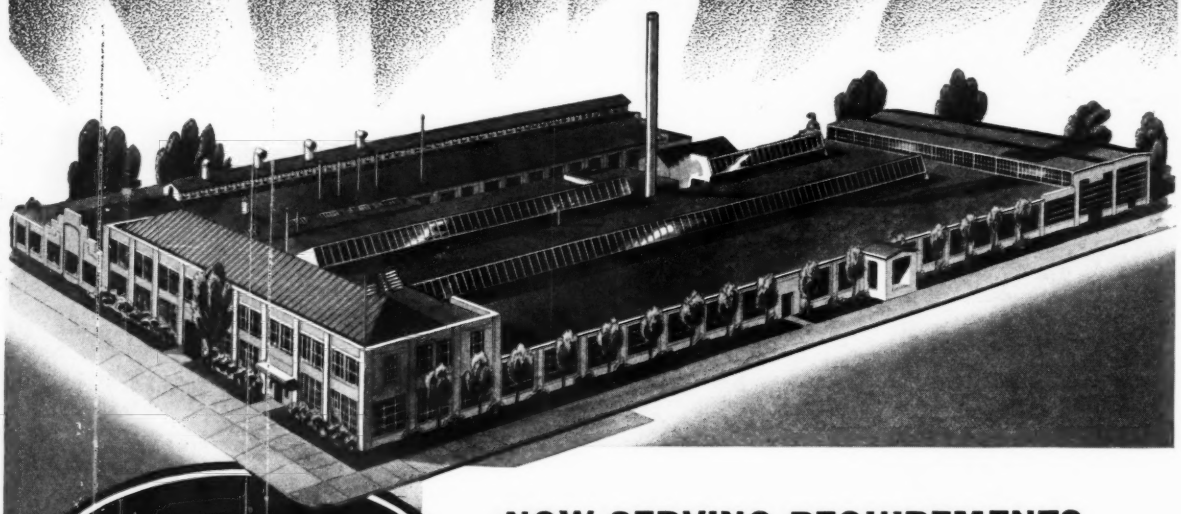
THIS NATION-WIDE CAMPAIGN FOR CONSERVATION BUILDS YOUR REPAIR AND MAINTENANCE BUSINESS

LOOK FOR BUSINESS FROM HOTELS, HOSPITALS, APARTMENTS, OFFICE BUILDINGS, SCHOOLS, CLUBS, ETC.

Every month Sloan Valve Company is helping build your repair and maintenance business—the long-profit side of your ledger. . . . When you get a call, here are just a few suggestions: When opening a Sloan valve use a flat wrench. Exercise care when removing the rubber diaphragm or molded cups, for with careful handling these can often be re-used. Tighten the handle packing nut. Avoid excessive use of joint compounds when reassembling the valve. . . . And remember: Sloan Flush Valves (the world's premier) are still available for all projects having the proper priority rating. SLOAN VALVE COMPANY, 4300 West Lake Street, Chicago.

SLOAN FLUSH VALVES

THE PLANT THAT SERVICE BUILT!



NIBCO

THE MARK OF *Quality*

ON COPPER AND BRONZE VALVES AND FITTINGS

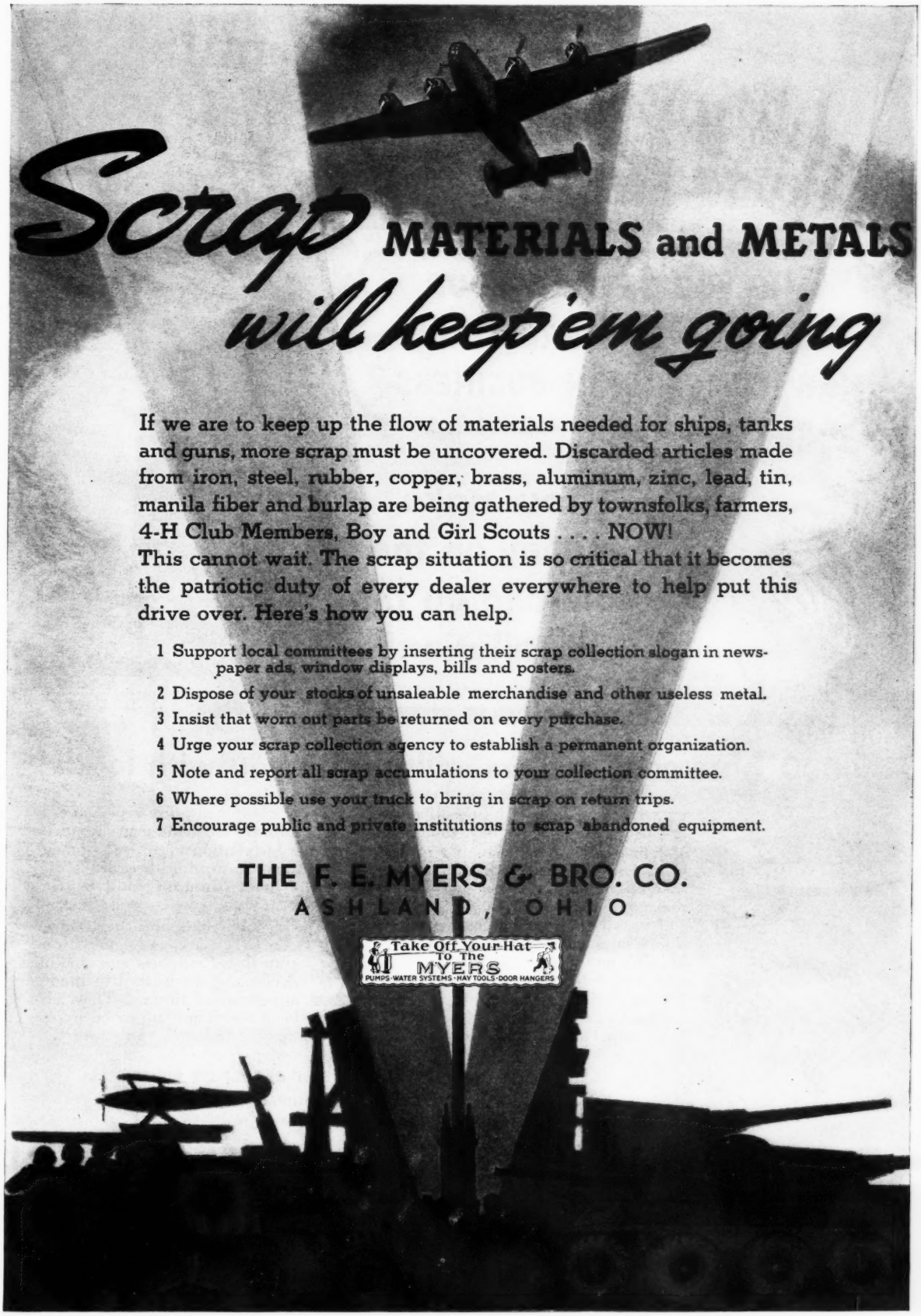
NOW SERVING REQUIREMENTS OF NATIONAL DEFENSE ★ ★ ★

HERE IS a great, modern plant devoted to an IDEAL . . . the ideal of quality . . . of accuracy . . . of precision manufacture. It has grown rapidly from its small beginnings because the plumbers of America found Nibco copper and bronze valves and fittings were so well made and accurately formed that they saved time and grief and eliminated service calls. Nibco had its part in the ever increasing development of copper plumbing . . . *but that was yesterday.*

Today we are turning the full production facilities of our plant to the needs of our armed forces. In aircraft, in ship building and in armament production where copper, brass, or aluminum parts must pass most rigid tests, you find Nibco products. We are proud of our service to the Nation . . . proud that our specially designed machines and highly trained men can do their part in helping to win the "battle of production" . . . to preserve the homes we formerly served in peacetime . . . *the homes we will serve again when "Tomorrow" comes.*

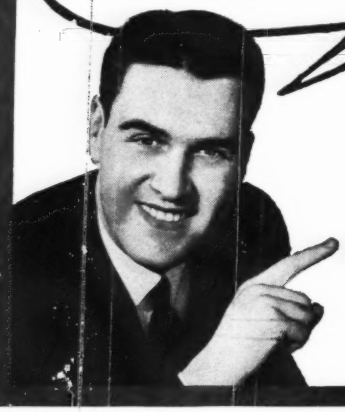
NORTHERN INDIANA BRASS COMPANY
ELKHART, INDIANA

AND FITTINGS SINCE 1904


Scrap MATERIALS and METALS
will keep 'em going
If we are to keep up the flow of materials needed for ships, tanks and guns, more scrap must be uncovered. Discarded articles made from iron, steel, rubber, copper, brass, aluminum, zinc, lead, tin, manila fiber and burlap are being gathered by townsfolks, farmers, 4-H Club Members, Boy and Girl Scouts . . . . NOW!
This cannot wait. The scrap situation is so critical that it becomes the patriotic duty of every dealer everywhere to help put this drive over. Here's how you can help.
1 Support local committees by inserting their scrap collection slogan in newspaper ads, window displays, bills and posters.
2 Dispose of your stocks of unsaleable merchandise and other useless metal.
3 Insist that worn out parts be returned on every purchase.
4 Urge your scrap collection agency to establish a permanent organization.
5 Note and report all scrap accumulations to your collection committee.
6 Where possible use your truck to bring in scrap on return trips.
7 Encourage public and private institutions to scrap abandoned equipment.
THE F. E. MYERS & BRO. CO.
ASHLAND, OHIO
Take Off Your Hat To The MYERS
PUMPS · WATER SYSTEMS · HAY TOOLS · DOOR HANGERS

Lifting of Curbs Permits Conversion of Oil Burners

ARE YOU GETTING YOUR SHARE OF THIS PROFITABLE NEW CONVERSION BUSINESS?



You make money on the sale *and* on the installation!

Coal Grates Now Can Be Bought

It is possible for a home owner whose furnace once burned coal, or is of the convertible type, to buy immediately the grates and shakers necessary to convert it from an oil-burning to a coal-burning furnace.

Recently the WPB order L-79 was amended, and the restriction on the sale of conversion material was removed.

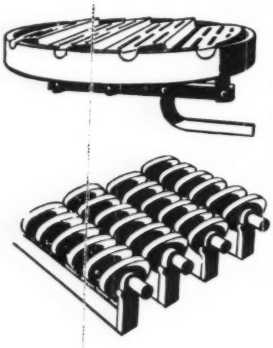
Secretary Ickes said convert or freeze.

The WPB said then no plumber could buy, without a preference rating, more than $10 worth of supplies for any one repair job, no item of which can cost more than $5. And grates range from about $12 on up.

The WPB further said that when the order called L-79 was in effect it was unlikely home owners would be granted the priority rating necessary to convert.

But now all is well, and Mr. Ickes, joyful in the knowledge that grates can be bought, even by little folk, is urging conversion more strenuously than ever.

4000 "blue coal" dealers will furnish you with leads!



WITH the danger of a fuel oil shortage growing every day, thousands of home owners are changing to coal heat. And with priorities and all wartime restrictions on the sale of conversion equipment removed . . . the sale and installation of 'blue coal' Conversion Grates offers plumbing and heating contractors a splendid source of new business and extra profits.

Thanks to a powerful advertising campaign on the new Conversion Equipment, 'blue coal' dealers right now are receiving many inquiries on the installation of this equipment. And they are turning these leads over to the local plumbing and heating men.

The ingenious new 'blue coal' Conversion Grates are complete with all grate bars, supports and shaking device, and can be readily fitted to any standard furnace. They have been tested and approved by Anthracite Industries Laboratory.

CONTACT YOUR LOCAL 'blue coal' DEALER OR WRITE TO THE D. L. & W. COAL CO., EQUIPMENT DIVISION

'blue coal' CONVERSION EQUIPMENT

THE DELAWARE, LACKAWANNA & WESTERN COAL CO., 120 BROADWAY, N. Y.

Saves Time *in Threading*

When you cut your first threads into the soft ductile metal of Fretz-Moon Pipe, you're in for a pleasant surprise—clean, sharp, full threads cut quickly and with less effort than you usually apply.

For this you can thank the perfected continuous-weld process used by Fretz-Moon and the time and temperature controls used in the process to keep the metal free from hard and burnt spots.

You can cut threads on Fretz-Moon Pipe by hand or machine and, if you use sharp dies and good threading practice, you never need worry about rough broken threads—the kind that often have caused you to do your work twice over—and many times have turned a prospective profit into a loss.

WHEN YOU BUY PIPE REMEMBER THESE

14 Points

OF FRETZ-MOON SUPERIORITY

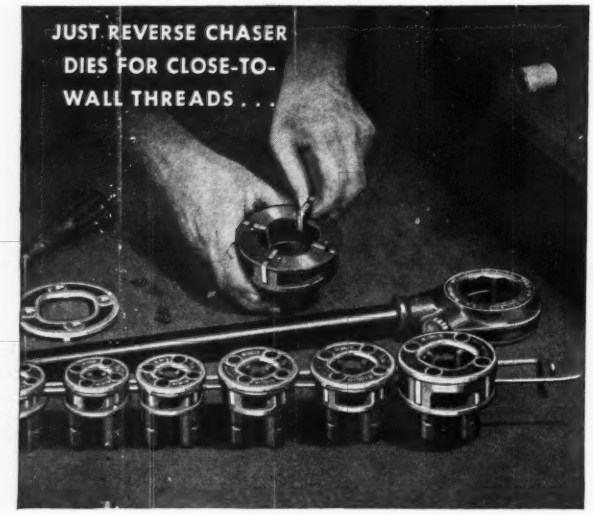
- Uniform in quality
- Uniform in size
- Uniform in wall thickness
- Uniform in weld strength
- Uniformly soft and ductile
- Uniformly threaded
- Uniformly easy to cut
- Uniformly easy to thread
- Uniformly easy to bend and coil
- Uniformly easy to weld
- Uniformly easy to fit
- Uniformly clean and free from scale
- Uniformly galvanized with a smooth tight coating
- Uniform lengths

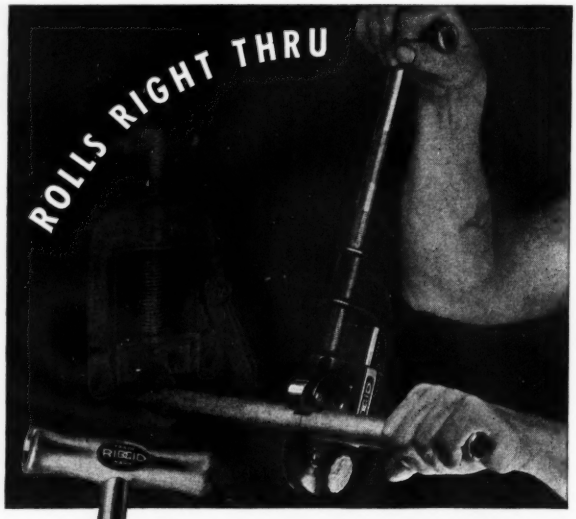
★ ★ ★

Extra Long Lengths Also Available

Ask your jobber about Fretz-Moon Pipe. If he stocks it, he will tell you more about its advantages. It's available in steel—black and galvanized—and in UNIFORM LENGTHS.
Fretz-Moon Tube Company, Inc., Butler, Pa.

THE *Original* CONTINUOUS-WELD PIPE

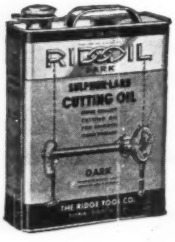




Quicker Threading

of small pipe with this handier RIDGID Ratchet Die

Minutes are important now — and this remarkable steel and malleable RIDGID No. 11R saves them for you. Die heads push out easily for changing, snap in from either side, can't fall out. Alloy steel chaser dies are quickly removed for regrinding or reversed for close-to-wall threading; no special dies needed; cut smooth perfect threads. Electrical conduit dies at regular die prices. Convenient carrier free with complete sets, sizes 1/8" to 1 1/4". Also available in 3-way Die Stocks. Ask your Supply House for this faster easier RIDGID.



Give yourself smoother cleaner threads with RIDGOIL (Ridge-oil) — penetrates quickly, cools, lubricates. It's antiseptic, won't congeal above 20° F. Sulphur-lard base, Dark and Nu-Clear, quarts to 55 gallon drums. Buy it today — and save threader dies and cutter blades.

Work-Saver RIDGID CUTTER

rolls easily through any pipe

In these critical days when the cry is to get work done faster, this RIDGID Heavy-Duty Cutter offers you more speed with less effort. The rugged malleable frame holds the cutting wheel inflexibly in line — it always cuts true; and it's balanced for easiest hand operation. Some of that ease and speed and clean cutting comes from the forged heat-treated blade-type wheel, assembled in a solid steel-bushed hub, tough but thin for penetrating. Or you may have special heavy-duty cutter wheels. Made for pipe to 4". It pays you to ask for RIDGID Cutters — at your Supply House.

RIDGID No. 1 and 2 Heavy-Duty Pipe Cutter

No. 42 for Tight Places

This new 4-wheel trench-type cutter gives you faster cutting, has a short handle for easier use in close quarters. Powerful RIDGID construction.

All RIDGID Pipe Tools are sold through Supply Houses

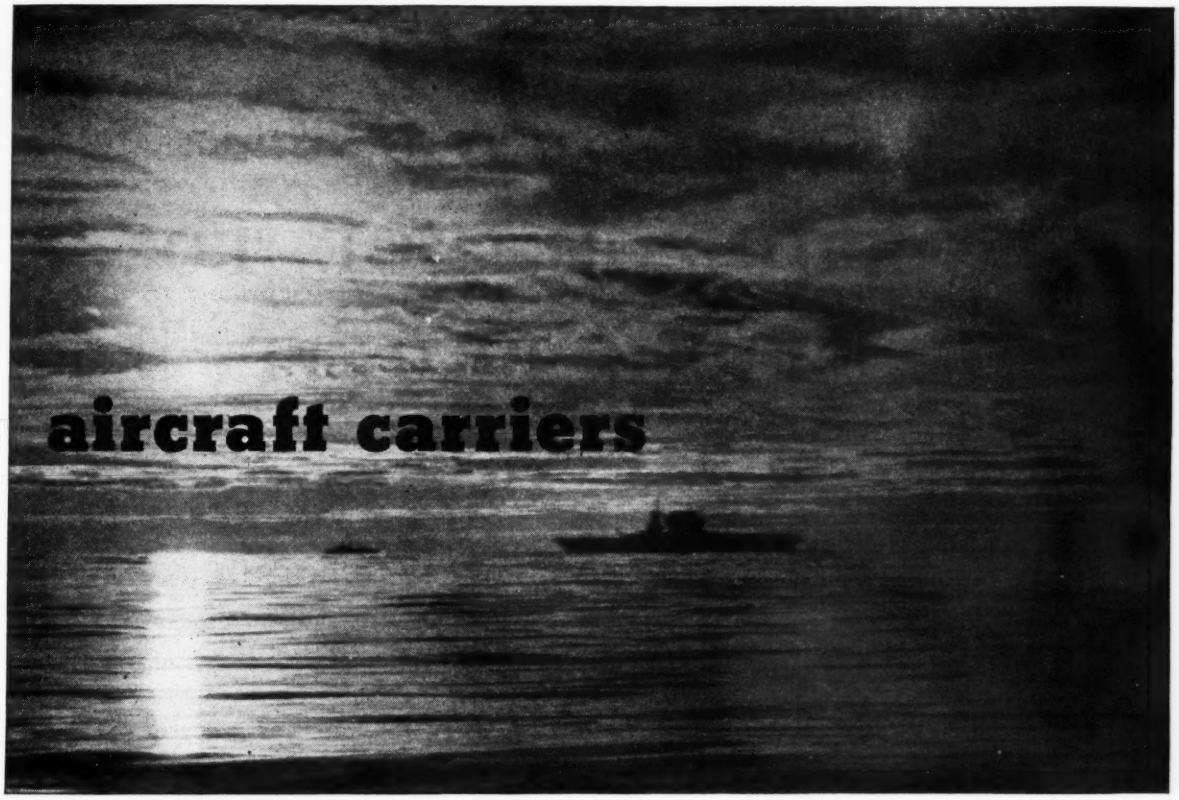
RIDGID

THE RIDGE TOOL COMPANY
ELYRIA, OHIO, U.S.A.

Pipe Wrenches, Cutters, Threaders, Vises

Work-Saver Tools for America's Big Job in 1942

Pipe . . .



and your plumbing business

It takes a whale of a lot of pipe to equip a single aircraft carrier—tons and tons for water lines, steam lines, air lines and miscellaneous jobs.

Multiply the pipe tonnage needed in one warship by a 2-ocean navy, add the pipe needed in an 8,000,000 ton cargo fleet—and you see immediately why pipe is a scarce and vital material, even though it's being produced in greater quantity than ever before.

Many of our friends and customers are making great sacrifices in behalf of the war effort. Pipe that they normally could obtain for peacetime business jobs is now drafted for war.

However, as soon as the war is won we'll be ready and able to supply Beth-Co-Weld pipe again in quantity. We sincerely hope that you will be among those we can serve, through your local distributor.

BETH-CO-WELD PIPE

BETHLEHEM STEEL COMPANY

BETHLEHEM STEEL

Service

IS YOUR BRIDGE TO FUTURE PROFIT

All you ever heard or read about the importance of service, goes double now!

Service is not only important—it's a vital necessity. And not for the heating industry only—for *all* industry—*for the whole nation!*

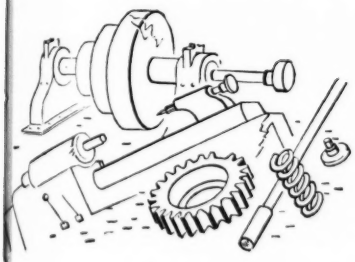
In the heating industry we've got a special job to do—the job of conserving... protecting what we have. We've got to save existing equipment... make it do... and see that it serves efficiently and economically—to protect health and morale—*to save fuel!*

There's no time to dream now about the post-war world. But you can do a little hard thinking. And it doesn't take much imagination to picture the market—the pent-up demand—that will exist then.

Service is your bridge to that market—those future profits. It's a worth-while job right now—it will pay off richly when the war is won.

Penn offers you full co-operation in keeping existing heating plants functioning efficiently. Like all items of equipment, automatic controls must be skilfully and thriftily serviced. Under established priority rules Penn is prepared to furnish new controls to replace those which cannot be made to function efficiently. *Penn Electric Switch Co., Goshen, Ind.*

WANTED:



6,000,000 Extra Tons of Scrap Iron and Steel

TO KEEP PLANTS RUNNING FOR WAR PRODUCTION

The steel industry must have more scrap iron and steel—not next month or several months hence—but *RIGHT NOW!*

The expected return from regular sources—chips, turnings, borings, clippings, punched-out pieces, etc.—will be 6,000,000 tons SHORT of the tonnage required to produce the steel needed for War Production.

If this scrap isn't obtained *QUICKLY,* steel mills and furnaces—even war production plants—may slow down or shut down. Men may be laid off—and our soldiers may not get the equipment which can mean life or death—victory or defeat. Remember, it takes a ton of scrap for every two tons of steel produced in the open-hearth or electric furnace.

6,000,000 tons of scrap seems like a lot—but if every man in industry turns in every pound, every single piece he can lay his hand on, it can be obtained.

That old obsolete or worn-out machine back in the corner—those broken or worn-out jigs, templates, rolls, patterns, molds, dies, tools and fixtures—that old line shafting and pulleys which will never be used again—that pile of old pipe, gears, castings and what not behind the shop—that old water tank or steel structural work—old autos and trucks—that's the scrap needed here to win the scrap over there.

Everyone can "get in the scrap" by digging up scrap—around the plant and at home, too. Appoint a competent scrap committee—put this story on your bulletin boards (we'll gladly send reprints)—have a special scrap collection day or week—pile up your scrap and call your nearest junk or scrap dealer. He'll pay you for it and start it on its way to a steel manufacturer.

REPUBLIC STEEL — PRODUCTION FOR VICTORY

This Advertisement Sponsored by

REPUBLIC STEEL CORPORATION

General Offices: Cleveland, Ohio

Berger Manufacturing Division • Culvert Division • Niles Steel Products Division • Steel and Tubes Division
Union Drawn Steel Division • Truscon Steel Company • Export Department: Chrysler Building, New York, New York

In Cooperation with the U. S. Government's Salvage Campaign

MAIN LIBRARY

Thanks:

For many years I profited by your magazine. May you continue to prosper.

Washington, D. C.

Between Ourselves

Ideas . . . Ideals . . . Oddities . . . of our industry's month

Important Flash

Flash, September 4—The following telegram has just been received by your editors from a Domestic Engineering Washington representative:

"GOVERNMENT COORDINATED AGENCIES WILL OPEN CONSERVATION AND CONVERSION CAMPAIGN IN ABOUT ONE WEEK TIMED WITH OIL RATIONING. HAVE JUST SEEN PROSPECTUS OF THE CAMPAIGN. RATIONING EAST AND MIDDLEWEST ON LIGHT OILS, DIESEL AND KEROSENE INCLUDING HOME, INDUSTRIAL, AND COMMERCIAL. RATIONING FORMULA TO BE BASED ON OIL HEAT REQUIRED PER SQUARE FOOT ON NUMBER OF PERSONS IN FAMILY, ON LAST YEAR'S REQUIREMENTS. COUPON SYSTEM TO BE USED, COUPONS WITH INITIAL VALUE OF TEN GALLONS PER UNIT. UNITS OF 100 GALLONS ALSO TO BE USED. HEAT SEASONS TO BE DIVIDED INTO SIX PERIODS OF APPROXIMATELY EQUAL DEGREE DAYS.

"PUBLICITY CAMPAIGN WILL INFORM HOUSEHOLDERS IN FUEL OIL RATIONING AREA WHO CANNOT CONVERT TO COAL THAT THEY HAVE A SOLEMN OBLIGATION TO SAVE FUEL IN EVERY POSSIBLE WAY. WILL URGE OVERCOATS ON BOILERS. CLEANING OF HOT WATER PIPES. WILL PUBLICIZE THAT ANY HEATING CONTRACTOR CAN HELP HOUSEHOLDER ARRANGE FOR TIME PAYMENT TERMS IN WHICH PAYMENT CAN BE PAID OUT OF FUEL SAVINGS WITH UP TO THREE YEARS TO PAY UNDER FHA WITH LOANS UP TO $2500."

● ● ●

Allwork Advanced

Appointment of Ronald Allwork as deputy chief of the Plumbing and Heating Branch, WPB, has been announced by W. Walter Timmis, chief of the Branch.

Mr. Allwork has been chief of the Branch's Planning and Projects Section.

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Fuel Conservation

To the Editor:

There is no question in my mind of the splendid job you are doing and the pressure you have put forth in presenting a complete fuel conservation program. We are convinced that you, as publishers of the leading trade publication in the plumbing and heating industry, are doing your part and your readers unquestionably are following your leadership.

We, here, believe the industry generally will subscribe to the thought that humidification is essential, to a degree, for fuel conservation, opinions to the contrary notwithstanding, and should rightly take its spot in any movement toward this end.

H. J. Carr, Vice President,
Maid-O-Mist, Inc., Chicago.

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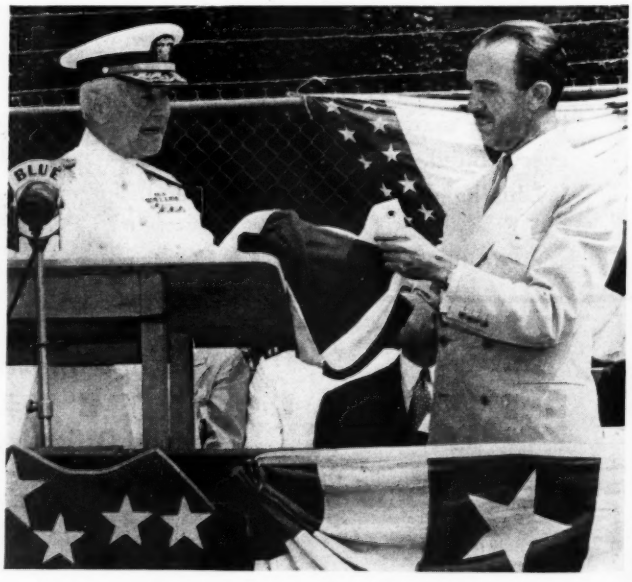
Deer Go to Camp

Year after year, Domestic Engineering has been printing the usual piece concerning Jack Camp, senior past president of the San Francisco M. P. A. Our readers know the story backward; and so do the editors, who until now have left it standing in type, changing each season's story only to conform with dating requirements.

Again—this time for the eighteenth consecutive season—Camp has brought home his bag limit, a brace of bucks. But this year, on the morning of August 10, the story took a new and startling twist, in that the San Francisco master plumber brought down both bucks within 90 seconds. "With no warning, five bucks moved out into the open. . . . It was just one of those things that happen once in a lifetime."

One animal dressed 138 lb, the other 117. Camp brought down his two bucks on the preserves of the Wildcat Club, of which he is president. The club is situated in Marin County, a 45-minute drive from the office of J. Camp & Co.

Jack Camp and one of the two deer which he shot within 90 seconds of each other



The Bridgeport plant of Jenkins Bros. wins the Army-Navy "E" for excellence as Bernard J. Lee, vice president in charge of manufacturing, receives the flag on behalf of Jenkins employees from Rear Admiral Wat T. Cluverius For news of other awards, see pages 52 and 53

How to obtain "ALL-OUT" WATER SAVINGS from flush valves

CONSERVE FUEL AND POWER FOR THE WAR EFFORT!

FLUSH VALVES save water compared with any other type of flushing equipment. That's one of the big reasons why they are so widely used today.

Not always appreciated, however, is the fact that SOME flush valves save a great deal MORE water than others.

The Secret of Water Saving

The secret of obtaining MAXIMUM water savings from flush valves is to have the length of flush of each valve ADJUSTED to the actual water needs of the fixture on which it is installed. Fixtures vary in their water requirements and frequently as much as a gallon or more of water per flush can be saved by proper adjustment.

The tremendous EXTRA savings which individual adjustment makes possible can be judged by the fact that in a building with say—200 flush valves, an additional water saving of 1,168,000 gallons annually might be expected on the basis of one gallon saved per flush. (To judge what may be saved in other buildings, see table following).

Water saved not only means lower water bills, but also means that fuel and power—required for pumping the water—are conserved. New service manual described below will give you full data on saving with flush valves. We'll be glad to send you a copy.

Estimated annual savings of water obtainable through proper regulation of flush valve to actual water needs of fixture*

	Building with 100 Flush Valves Gallons saved	Building with 500 Flush Valves Gallons saved	Project with 1000 Flush Valves Gallons saved
When average of ½ gal. saved per flush	292,000	1,460,000	2,920,000
When average of 1 gal. saved per flush	584,000	2,920,000	5,840,000

*These savings would vary somewhat with the type of building in which the valves are installed. Figures shown at left are based on use of fixture 16 times a day.

Every Watrous Flush Valve Is Adjustable

When you install Watrous Flush Valves you make possible ALL OUT water savings on every job because EVERY Watrous Flush Valve is READILY ADJUSTable. It is not necessary to take the valve apart or even to shut off the water.

All that is required is to remove a cap nut and then a partial turn of a regulating screw sets the length of flush exactly in accordance with the requirements of the fixture—whether it is a urinal using ½ gallon or a closet requiring 7 or 8 gallons per flush.

KNOW MORE ABOUT FLUSH VALVES

Anyone who has any interest in the specifying, installation or maintenance of flush valves should have the information contained in the new service manual —"Keep 'Em Flushing"—just published by Imperial Brass.

With simple diagrams it shows how a flush valve operates. Gives full data on how to obtain maximum water savings; shows how to reduce maintenance time to a minimum. Includes a helpful "trouble-shooter" chart; other data.

Write for your copy

ESPECIALLY VALUABLE at Army, Navy and Air bases

THE IMPERIAL BRASS MFG. CO.
1231 West Harrison Street, Chicago, Illinois
Distributed through wholesalers of plumbing materials

Watrous Flush Valves

DIAPHRAGM and PISTON TYPES . . . also furnished with SILENT-ACTION equipment

Between Ourselves . . .

Questions for Readers

To the Editor:

An interesting question was submitted to me today as to the definition of "block tin pipe" . . . Why is tin pipe called "block tin pipe?"

It seems like a foolish question, but I thought it was interesting and would like to be able to answer it.

Wm. F. Hildeman
Chicago Heights, Ill.

● Why is "block tin pipe" called that? Answers from readers are invited.—Ed.

● ● ●

"Air Raid" Services

● In a recent bulletin, the National Better Business Bureau has issued a warning to beware of unqualified persons and organizations who seek to render an "air raid protection service." If is pointed out that persons or organizations engaged to provide such a service may be given intimate details of large buildings, including information on power plants, and the plumbing, heating and fire protection equipment.

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Fire Prevention Week

Due to dangers to the war program from fires, greater emphasis than ever before has been placed on the nation's observance of Fire Prevention Week by President Roosevelt, who has proclaimed October 4 to 10 as the period.

As a perfect tie-in with the current fuel conservation campaign, Fire Prevention Week offers a golden opportunity to the heating industry to advertise its services for repair and maintenance of heating equipment. Adjustments and repair of the heating systems spells conservation of fuel as well as protection against fire.—Ed.

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The Plumbing Movie

● Wm. J. Lang, president, Pure Water Film, Inc., 1251 N. Clark St, Chicago, Ill., has announced a brochure will be available to the industry around the middle of September. Eleven thousand, five hundred will be mailed at that time. It consists of a description of the film, as well as typical photos from the film. It is entitled, "The Plumbing Industry's First Movie Hit." Mr. Lang intends to enclose a business reply envelope for contributions. The film is now ready for bookings, as announced in Domestic Engineering for August.—Ed.

Ancient History?

If there are those who do not think that history repeats itself, let them read the following excerpts from Domestic Engineering issues of World World I:

"The fuel situation is such this year that house owners are all concerned in the matter of fuel saving. It is a question which is being fired point blank at every heating contractor and plumber in the country, and it is one which is taxing the ingenuity of the best of them.

"There are no general rules for fuel conservation that will cover all cases, and the heating contractor can be likened unto a physician. It becomes his duty, when called upon, to investigate each individual plant and then prescribe accordingly."—"Pointers on Fuel Conservation in Modern Heating Systems" by W. W. Hughes—September 28, 1918.

● ● ●

"As requested by the Fuel Administration, the Minneapolis public schools for 1918-1919 are to be rationed on coal on the basis of 75 per cent of the fuel burned during 1917-1918. This is due to the immense shortage of 81,000,000 tons of coal in the United States."—"How Fuel is Being Conserved in the Public Schools in Minneapolis"—September 9, 1918.

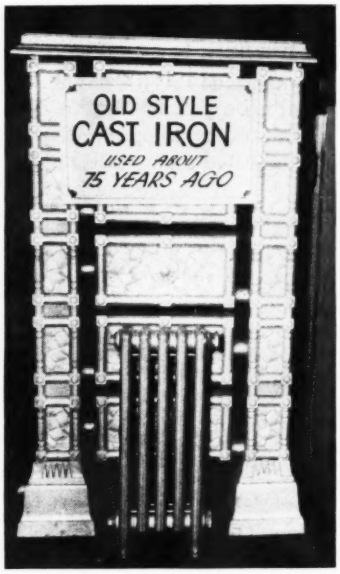
● ● ●

"The Fuel Administration will launch a comprehensive and intensive advertising and publicity offensive, setting forth the necessity and advantage of 100 per cent efficiency in coal economy.

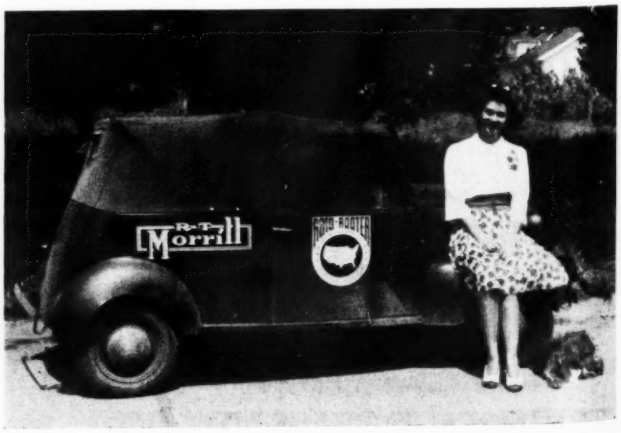
"Heating contractors will have an opportunity to cooperate with the Government in this great fuel conservation campaign which will open on October 1st. In thus cooperating, they will be rendering a patriotic service as well as finding an essential source of more business in heating contracts.

"Here is an unparalleled opportunity to teach patriotic houseowners that they can best cooperate with the Fuel Administration in preventing coal shortage by installing economical heating systems. They can be shown that this is the logical way to 'Keep the Home Fires Burning' next winter."—"Cooperate with Uncle Sam in his Great Offensive for the Conservation of Fuel"—August 24, 1918.

(Continued on Page 69)



M. A. Toussaint, Madison, Wis., has the above radiator on display alongside modern types. The radiator was removed from an ancient hotel by Mr. Toussaint. Ideas and showmanship (as indicated by these two photos) pay off in terms of customer-attention



Your reporter was driving along a street in Beloit, Wis., when he noticed, in the corner of his eye, this automobile of R. T. Morrill, well-known plumbing and heating contractor. "You're there with a Crosley," said Mr. Morrill, who previously had an Austin

VICTORY
RATIONING . . .
East's oil desperately short, violations would cut war supply, says Henderson
OPA Aide Says Lack Of Fuel Oil May Shut Down War Plant
CONVERSION TO COAL URGED
ROOSEVELT GIVES FUEL OIL WARNING
Declares There Is No Guarantee Minimum Needs Will Be Met
Coastal Fuel Oil Deliveries To Be Halted Aug. 3 To Sept. 15
CURB ON FUEL OIL IN EAST FORECAST
OPA AIDE FEARS LACK OF FUEL OIL
Oil Heat Conversions Declared Less Than 4% Above East Coast
BIGGEST CHANCE IN HEATING HISTORY FOR QUICK PROFITS!

Cash in with *Convert-O-Grate*

QUICK FACTS

CONVERT-O-GRATE is a *complete* kit for re-converting Gun-type Oil Furnaces to coal. Fits 80% of all domestic gun burner installations. Backed by Anchor Post Fence Company—a name you and your customers can rely on!

QUICK! Preliminary installation takes about 2 hours. Customer continues to burn oil while his supply lasts. When fuel shortage forces conversion, job is completed in 8 minutes!

SAVES OVER HALF what old-fashioned conversions cost.

SEMI-AUTOMATIC. Uses oil burner blower for draft. Thermostat still regulates furnace.

BURNS EITHER OIL OR COAL. Customer can switch back whenever oil shortage ends—in 8 minutes!

Front-page news stories straight from Uncle Sam are threatening, warning, reminding Oil Burner Owners they've GOT to convert to coal—using such phrases as "people may freeze" . . . "war plants may be shut down!" And every announcement sends *Convert-O-Grate* sales SOARING, because this amazing wartime invention converts oil burning furnaces at less than half the cost of old-fashioned conversions. And there's the reason *Convert-O-Grate* gives you the biggest chance in Heating history for quick, sweet profits!

Inquiries from consumers are pouring in. Dealers report they're swamped with orders. As winter makes the fuel oil shortage worse, sales will skyrocket to new heights. NOW IS THE TIME TO CASH IN! Every day you delay means lost sales, lost profits. Fill in the coupon below—tear it out and mail it to us today for your share of this land-office business!

We'll rush you by return mail full details of *Convert-O-Grate* construction—installation—performance—price and profits . . . plus details of FREE merchandising plan that makes it easy to get all the *Convert-O-Grate* sales you can handle. Newspaper mats, telephone canvass, Radio spots, letters, circulars, sales manuals! First come, first served. MAIL THE COUPON NOW!

HEATING DIVISION, ANCHOR POST FENCE CO.
6659 Eastern Avenue, Baltimore, Maryland

MAIL NOW *for fast profits!*

HEATING DIVISION, Anchor Post Fence Co.
6659 Eastern Ave., Baltimore, Md.

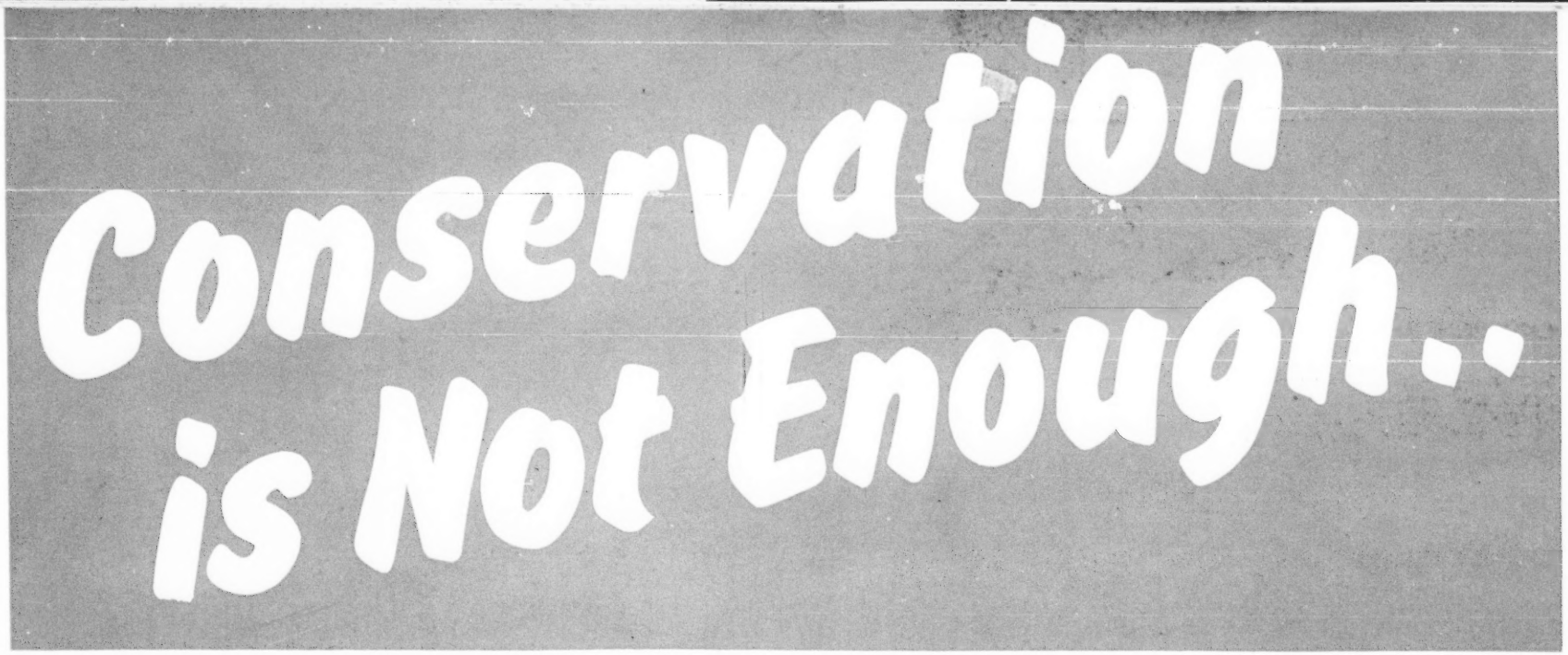
Rush me full information and prices on your new *Convert-O-Grate*. I am an ( ) Oil Dealer, ( ) Oil Burner Dealer, ( ) Heating Contractor.

I service.....Conversion installations

Name .....

Address .....

City.....*State*.....



IN ADDITION TO DOING THE CONSERVATION JOB

...*The Heating and Plumbing Industry Must Tell*

WHAT IT HAS DONE and

WHAT IT IS DOING!

Here's Why! **. . . The heating industry has a war on its hands. It's a full-fledged war . . . it's a war which is inspiring the best efforts and the most ingenious enterprise of our industry. It is war in which there can be no compromise . . . it's a war on which our entire industry is united . . . it's our industry's declared war on fuel waste.**

THIS war is being waged in all sections of the country. Victory will be ours only when demands for space heating fuel have been so reduced and so redistributed that next winter's heating load will not compete with the war effort. The heating industry is in motion and will continue with full speed ahead until its war on fuel waste has been won.

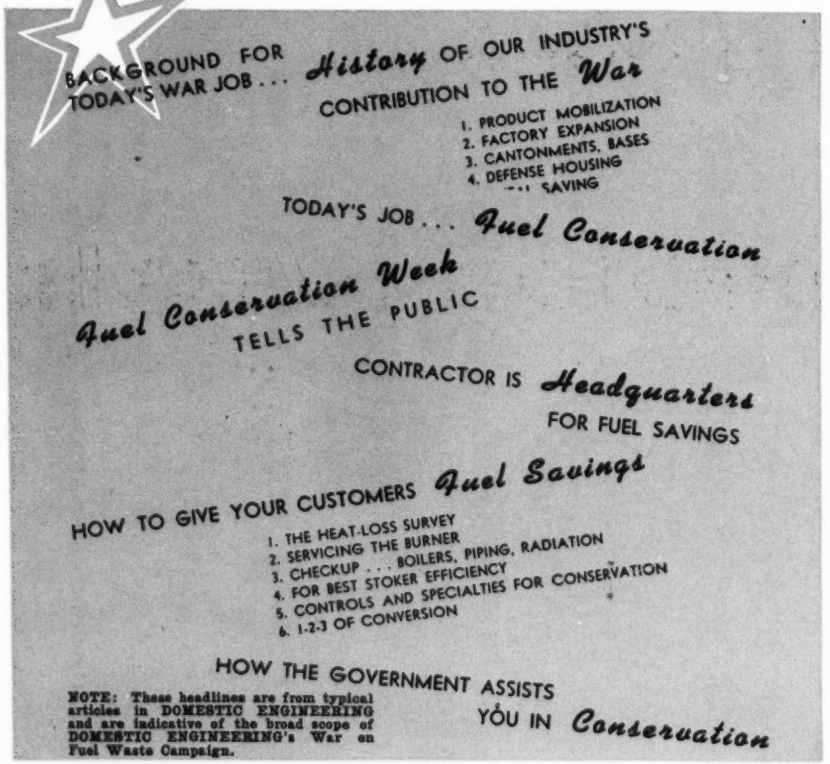
But this is not enough! And, here is the reason: While the war on fuel waste is the biggest single job facing the heating industry today, it is just one of many fronts in the total war engaging the attention of the Federal Government and the American people as a whole.

The Government can formulate policies and make allocations as its contribution to the war on fuel waste, but it is impossible for the Federal Government in its various divisions to know to what extent this job is being accomplished and what is being developed to accomplish it unless the heating industry makes its report . . . regularly and consistently. The heating industry must not only do the actual job of conservation . . . it must also do the job of telling what it has done and what it is doing for the benefit of Washington officials.

In addition, fuel conservation itself cannot be attained in satisfactory degree unless a second job is accomplished simultaneously. This second objective, which aids and—all down the line—expedites the work described above, is a communications job . . . it is a job of giving out information. In other words, wholesalers and contractor-dealers must know the products which you as a manufacturer can make available and which will save fuel for their customers. Wholesalers and contractor-dealers must understand your plans for helping them in their conservation work . . . must know of your activities.

The Government (Office of Price Administration, Consumer Division; Petroleum Coordinator for War; Solid Fuels Coordinator; Office of Defense Transportation; Plumbing and Heating Branch of War Production Board; Federal Housing Administration; Federal Reserve Bank Board) . . . and its various interested divisions, must learn what it can expect from heating manufacturers . . . must have a basis on which to plan its cooperation with our industry and with individual companies within our industry.

Now is the critical time in the fuel conservation program. It is when the home owner is beginning to realize that the heating season is creeping up on him. Soon the first frosts will paint vivid signs which will send him scurrying to his local heating contractor-dealer. Now is when the full force of DOMESTIC ENGINEERING'S fuel conservation campaign is reaching a new peak. Right now is your opportunity to tell your conservation story as it pertains to your equipment. Tell what you have done and what you are doing in the next issue of DOMESTIC ENGINEERING . . . the publication which is read by all factors concerned with the fuel conservation program . . . tell it for the benefit of our industry and tell it for the benefit of Washington officials.


BACKGROUND FOR TODAY'S WAR JOB . . . History OF OUR INDUSTRY'S CONTRIBUTION TO THE War
1. PRODUCT MOBILIZATION
2. FACTORY EXPANSION
3. CANTONMENTS, BASES
4. DEFENSE HOUSING
. . . SAVING
TODAY'S JOB . . . Fuel Conservation
Fuel Conservation Week TELLS THE PUBLIC
CONTRACTOR IS Headquarters FOR FUEL SAVINGS
HOW TO GIVE YOUR CUSTOMERS Fuel Savings
1. THE HEAT-LOSS SURVEY
2. SERVICING THE BURNER
3. CHECKUP . . . BOILERS, PIPING, RADIATION
4. FOR BEST STOKER EFFICIENCY
5. CONTROLS AND SPECIALTIES FOR CONSERVATION
6. 1-2-3 OF CONVERSION
HOW THE GOVERNMENT ASSISTS YOU IN Conservation

NOTE: These headlines are from typical articles in DOMESTIC ENGINEERING and are indicative of the broad scope of DOMESTIC ENGINEERING'S War on Fuel Waste Campaign.

Conservation is the Heating and Plumbing Industry's Opportunity for Patriotic Action!

Here is our chance to establish for all time . . . to write into the history of the war effort . . . our industry's contribution to the war. DOMESTIC ENGINEERING, each month, is recording our industry's history and, as it is recorded, DOMESTIC ENGINEERING brings it to the attention of all concerned, including Washington.

DOMESTIC ENGINEERING, 1900 PRAIRIE AVENUE, CHICAGO

HE WOULD ASK YOU—

"ARE YOU DOING YOUR SHARE?"

Perhaps things we are being requested to do now would sound strange to Lincoln—like saving gasoline and conserving tires but he would be for them if they meant the defeat of an enemy of America—and Americans.

Saving steel is another important item. Help all you can here by having old tools repaired and dies reground.

And with the money you save—BUY DEFENSE STAMPS AND BONDS.

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO **NEW YORK OFFICE: 2 RECTOR ST.**

"TOLEDO"
TRADE-MARK REGISTERED U.S. PAT. OFFICE

Our Industry

The Government Means Business . . .

PRESIDENT SEES
25 PER CENT CUT
IN HOME FUEL
ton, Sept. 1.—(AP)—Presi-
velt saw a possibility to-
ersons in some parts of
States will have to
gh the winter on 25 per
than they have used
s press conference
he had no plans in
to appeal to the country to
save fuel by reducing temperatures
in homes this winter or through
other means. He remarked that he
already had made two or three ap-
peals relating to fuel, and he added
that some persons can get along on
a lot less heat and some can't.

Via Western Union

THE PRESIDENT SAID AT HIS PRESS CONFERENCE TODAY THAT, ALTHOUGH HE HAD MENTIONED FUEL CONSERVATION IN AT LEAST TWO STATEMENTS RECENTLY, HE WISHED TO ADD THAT A LOT OF PEOPLE CAN GET ALONG WITH A LOT LESS FUEL THAN THEY HAVE USED IN THE PAST, AND THAT IN SOME SECTIONS OF THE COUNTRY THE TOTAL CONSUMPTION OF FUEL CAN BE REDUCED 25 PERCENT BY CONSERVATION ON THE PART OF THE HOME OWNER OR DOMESTIC USER. THE STATEMENT WAS MADE IN ANSWER TO THE QUESTION WHICH YOU SUBMITTED TO ME FOR PRESENTATION AT THE PRESIDENT'S PRESS CONFERENCE, NAMELY: IN VIEW OF THE THREATENED FUEL SHORTAGES, DO YOU PLAN TO MAKE AN APPEAL TO THE COUNTRY TO CONSERVE FUEL THIS WINTER? W. R.

THE above is a telegram from one of DOMESTIC ENGINEERING'S Washington representatives, who is a regular and accredited member of press conferences at the White House.

The telegram is reproduced here for a double purpose: first, to put the record straight because the President's statement has been misinterpreted and, second, to show that the Government means business on fuel conservation.

As indicated by the telegram, your editors prepared the question which was submitted to the President as concerning the most important single subject today facing the public at large and the plumbing and heating industry.

It can be assumed that the President would not have been willing to discuss this subject had he not received authentic reports on it from the Government agencies concerned and had he not recognized that fuel shortages represent an important war problem.

Thus, the President's words can be taken to represent the view of the entire Government on this vital matter of fuel conservation. . . . And they should answer once and for all the question, "Will there *really* be a fuel shortage?"

On the same day that the President discussed fuel conservation with the DOMESTIC ENGINEERING representative and news men, the War Production Board let it be known that a card rationing system for fuel oil would be instituted *in middlewestern and other areas, as well as in the East.* Use of fuel oil, it was indicated, would be limited to 65 to 75 per cent of normal consumption.

The Government means business on conservation.

When the oil situation is coupled with two other facts —(1) that gas for heating is so short that its use is restricted everywhere and (2) that shipment of adequate supplies of coal to all points is *not* assured—the situation facing the nation this winter is clear.

The nation faces critical fuel shortages that can bring discomfort, cut war production and open the door to epidemics. The problem belongs to the entire nation, but the answer to the problem lies in the hands of the heating and plumbing industry.

The opportunity offered to our industry was well stated by a Government official, who holds an important position, at the recent "War on Fuel Waste" forum in New York City. Said this speaker:

"War has created a challenge for you of the heating and ventilating business, and for you whose job it is to guard the community health. That is the dream opportunity of a lifetime.

"It would be crude business policy for any one here to look upon the possible distress of thousands of families as the keystone of a bonanza. . . . But the job we must do—and do fast—is stimulating home and plant improvements for the conservation of fuel and heating oil. *This will create a quick market the magnitude of which is anybody's guess.*"

In very truth, the impending fuel shortage offers the heating and plumbing industry an unprecedented opportunity to gain the good will and thanks of the American public. It offers our industry the opportunity of writing into the record, for all time, along with other essential war industries, its contribution to the war effort . . . a record which can and probably will have far-reaching implications as time goes on . . . a record which is being preserved and reflected in DOMESTIC ENGINEERING each month. Also, of course, it offers the opportunity of maintaining and expanding the activity of thousands of individual heating and plumbing shops through specialization in fuel conservation work.

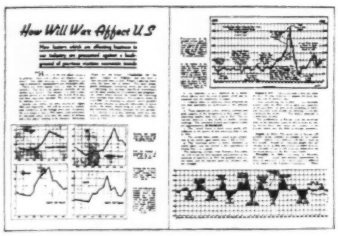
The Government means business on conservation, and conservation means business to the heating and plumbing industry.

and So Does Conservation

HISTORY of Industry's

BECAUSE our industry now faces a job as important and as broad in scope as any it has ever faced in the past. . .

Because, when facing a new job, it is



This article in October, 1939, DOMESTIC ENGINEERING indicated many of the trends which would affect our industry in World War II

a good idea to draw upon the background and inspiration of previous jobs well done . . . this summary of our industry's contributions to the war is presented.

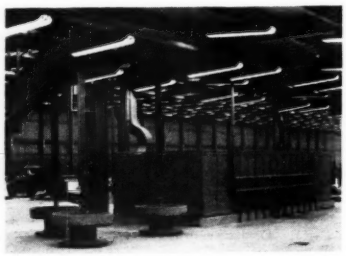
Job Number 1

At the start of the "defense" program, the Government realized that vast quantities of plumbing and heating would be needed for cantonments and other military establishments, for factory expansion and for defense housing. In response to a governmental request, DOMESTIC ENGINEERING surveyed the entire plumbing and heating industry to determine what stocks were available for immediate installation in the types of structures mentioned above.

The first job resulting from the defense program was a mobilization of supplies and an acceleration of production of the plumbing and heating equipment which would be needed for defense purposes.

Job Number 2

At the start of the defense program, American industry was handicapped by lack of plant facilities. Since plumbing, heating and piping rank with machine



Plumbing and heating are vital to production, which is vital to victory. Here is typical factory plumbing for the man behind the man behind the gun

tools as necessities which had to be installed before production could get into full swing, a vast number of plumbing, heating and piping installations had to be made long before the objective of 45,000 tanks and 60,000 planes could possibly be realized.

Many interesting problems in the remodeling of peace-time factories for war production were met and solved by contractors in our industry. Many new factories are of the "blackout" type, calling for the installation of complete year-round air conditioning.

While American production is now at an all-time high, many of the largest war plants are still under construction and offer a continuing field of activity for our industry.

Job Number 3

According to the Plumbing and Heating Industries Bureau, the American army is the "best plumbed army in the world." The construction of cantonments for the training of millions of men simultaneously — particularly with the rigid time limitations imposed — ranks as a tremendous undertaking.

To install plumbing in the familiar

Cantonment building continues as a miracle of speedy construction; plumbing and heating have been and are being installed on time

Today's Job

Mayor's Hot Water Curb Assailed By Realty Men as 'Ill Advised'
Rationing 'Unnecessary' Now They Contend at Meeting—Determination to Give Tenants Full Service Voiced by Many
'WOOLIES' ADVISED IN FUEL SHORTAGE
Ski Outfits for Women, Heavy Suits for Men Urged This Winter by Dr. Winslow
ASKS ALL TO 'PLAY GAME'
Indoor Temperatures Should Be Generally Lower to Avoid Contrasts, He Says
ICKBS AND OPA PLAN FUEL-OIL RATIONING IF NEEDED IN EAST
Joint Statement Declares Ways Are Still Being Sought to Make This Unnecessary
CONVERSION URGED AGAIN
Repair, Cleaning of Oil Units, Insulation of Homes Also Proposed to Save Fuel
Week's Coal Output Up But Below Winter Needs
Use Less Gas, Warm Eastern Homes, Is Plea
WANTS U. S. TO RULE ON HOT-WATER CURB
Realty Board Says Problem Concerns East's Seaboard, Not New York Alone
Tank Cars Roll
PLANS ARE OFFERED TO GET OIL HERE
Coupon Plan Hinted in Fuel Oil Ration
SAVE up to 1/3 ON YOUR FUEL BILLS
Grates Held Available to Convert Every Household Furnace to Coal
WPB Official Reports Change From Oil to Coal Is Moving Far Too Slowly —Metal Allocated to Aid Plan
PROTESTS GROWING ON HOT WATER PLAN
Building Owners and Agents
HEAT WAS SCANTY IN OLD-TYPE HOMES
Hot Water Supply and Warm Rooms Are Innovations of Modern Age
YET TENANTS WERE HARDY
City Sanitary Code Specifies Definite Heat Regulations for New York Houses
Coupon Ration Set-Up For Fuel Oil Hinted; Start on Sept. 15
PETROLEUM STOCKS DECREASED IN WEEK
Drop of 1,361,000 Barrels in 246,975,000 Is Reported
FUEL OIL RATIONING SEEN 'QUITE LIKELY'
WPB Aide Warns Those Who Can Convert Plants to Burn Coal but Fail to Do So
URGING INSULATION
CAUTION IS ADVISED ON FURNACE CHANGES

Contributions to the War . . .

★ PRODUCT MOBILIZATION
★ FACTORY EXPANSION
★ CANTONMENTS, BASES
★ DEFENSE HOUSING
★ METAL CONSERVATION

63-man barracks buildings, plumbing contractors constructed full scale shops on the job site, and pre-fabricated piping units to be fitted snugly into each barracks building as quickly as the progress of each building would permit.

The heating of such structures as hospitals and other large buildings involved installation of central steam units in many cases, and the placing of hundreds of miles of piping.

Radiators have been used extensively in hospitals, and unit heaters have been installed in mess halls, bakeries, laundries, etc.

Extensive additions are now being made to many of the existing camps.

Job Number 4

Just as plant facilities were insufficient at the start of the defense program, so also were housing facilities. Considerations of raw materials, transportation and tactics led to the location of many large plants in areas where practically no housing was available. The huge war plants located near large cities also have overtaxed housing facilities in practically all areas.

The first Act designed to fill the housing need called for construction of 300,000 dwelling units, and in addition many existing structures have been remodeled to care for defense workers.

The problem in defense housing has been to build homes which would be attractive to the workers and still require a minimum of critical materials. The "Emergency Plumbing Standards for Defense Housing" have furnished a pattern for the plumbing in these homes.

While the trend has been in the direction of constructing these units in a cheaper and cheaper manner, even to the extent of constructing buildings of the barracks type, thousands of single unit dwellings are still being built. While the policy is to authorize the minimum number of units possible, contracts for huge new developments are still being let.

Defense housing construction, a companion to industrial expansion. Here is part of a 230 unit housing development job in which R. T. Morrill, Beloit, Wis., has the plumbing and heating contracts

Job Number 5

Metal shortages have placed upon the plumbing and heating industry the obligation of taking care of Jobs 1, 2, 3 and 4 at the very minimum expenditure of critical materials. Our industry has responded by developing plumbing fixtures of clay materials; piping of plastic; ball cocks of plastic or clay; fittings and trim of cast iron, etc.

The most remarkable feature of these "substitutions," however, is the fact that many of them have proved themselves to be the superior, in some respects, of the materials which they replaced. This is largely due to the vast amount of research which has gone into the formulation of many of these products.

Fuel Conservation

"WAR ON FUEL WASTE WEEK
A Nation-Wide Event Inspired by the American Society of Heating and Ventilating Engineers as a Patriotic Service by the Heating Profes
August 17th to August 22nd incl
FUEL USER'S PLEDGE
In the Interest of National Security
And for His Own Comfort This Winter
• To see that my heating plant is clean and kept clean.
• To have my heating system inspected by a competent heating engineer, contractor or dealer.
• To have recommended repairs or alterations essential to efficient operation of the heating equipment made in August and September.
• To install insulation in both walls and ceilings, storm windows and weatherstripping.
• To carefully follow instructions on how to operate my heating system properly and economically.
• To keep temperatures at 68 to 70 degrees maximum.
• To conserve heat and fuel at all times.
HOT WATER SCHEME BRINGS CONFUSION
WARNS ON DELAY IN OIL-COAL SHIFT
FUEL-OIL SHARING URGED ON MIDWEST
La Guardia Will Ration Hot Water; Its Use Twice a Day Proposed
FUEL OIL RATIONING PLANNED FOR EAST
MIDWEST STRIPPED OF 5,000 TANK CARS
HOME SETS PROVIDED FOR COAL CONVERSION
WAR HOMES TO USE COAL
Wider Rationing Urged
COAL STORAGE PLANNING
PREVENT HEAT LOSS

OUR INDUSTRY *is Now* READY *for Today's Job*

Survey shows contractors prepare to handle fuel conservation work

IS OUR industry ready to handle fuel conservation work? Do representative contractors believe that they can maintain their establishments on fuel conservation service, plus plumbing service?

To obtain typical answers to these questions, Domestic Engineering has conducted a shop-to-shop survey of contractors located in an area where the balance of war work and non-defense work were judged to be about average for the country. The survey, which embraced parts of three states, included small towns, two medium-sized cities and one large city. The personal discussions of your editors with these contractors revealed an interesting cross-section of contractor opinion regarding today's conditions. Inescapable was the conclusion that the contracting branch of our industry, being flexible and adaptable, is also strong and well able to meet changing conditions.

The Middle West was selected for this survey in order to determine how important the fuel conservation program can become outside of the admittedly critical East. While space requirements prevent publication of all comments, the following are selected as typical:

Case 1, Small Town

This man is the leading plumbing and heating contractor in this small town; he has been in business for more than twenty years.

The contractor employs fifteen men now, and will add four or five men when a war job in a neighboring city gets in full swing. He will be busy on war jobs until October or November, and then expects to concentrate on service work as he has done in other years.

Conservation is not a new story to this contractor, as he has used fuel savings as a sales argument for many years. In preparation for the campaign, his bookkeeper already has begun a program of telephone solicitations to old customers and has obtained the go-ahead for many survey and service jobs. These will be handled just as quickly as men can be made available for the work.

This contractor sells stokers, oil burners and gas burners, and expects to merchandise all three when this equipment is again available for unrestricted sale. One conservation job by this firm included installation of a stoker and controls and made possible a 38.4 per cent fuel saving in a hotel.

At left: The "Headquarters for Fuel Savings" banner and pennant set displayed in the window of E. A. Kersten, of Oconomowoc, Wis. While there have been numerous requests for these displays, a few sets are still available without charge to the first contractor subscribers requesting them. Write to the Editor

In the Interest of
FUEL CONSERVATION
and YOU - NEXT WINTER

We are warned that lack of transportation facilities will make fuel deliveries uncertain. WE MUST PREPARE NOW. By helping yourself you help the war effort.

Here's What You Can Do!

1. If your heating unit has been converted from coal (or wood) to oil, prepare now to change to coal and order your coal supply.
2. If your heating unit can burn oil only, make its operation as EFFICIENT as possible—to USE LESS OIL.

Here's How We Can Help You!

1. Let us look over your grates, linings, etc., NOW. Heavy demand for parts and repairs later may prevent you from getting yours.
2. There are many inexpensive methods to reduce oil consumption by increasing efficiency and reducing heat losses. We can show you where your system LEAKS DOLLARS.

May We Inspect Your Heating System at No Cost or Obligation to You?

Let us help you to aid the War Effort by conserving fuel. It costs you nothing for our survey of your system—it may save you dollars in heating expense.

Call us at Peterborough 28 or mail post card at once to

Orvel B. Peirce Company

PETERBOROUGH

Above: Sample of New Hampshire contractor's use of the fuel conservation theme in his newspaper advertising. He first calls attention to the home owner's responsibility and then points out the ways in which he can be of assistance

Case 2, Small City

This contractor is attempting to handle a war job with only four journeymen, and his main problem is labor. He is finding materials increasingly tight, but has sufficient supply for routine repair and maintenance work for four or five months. He expects war jobs to last until the first of the year, and after that will depend on maintenance, repair and service work. As he gets additional men they will be used on local repair and fuel conservation work.

Case 3, Medium City

In business 30 years, this company has always specialized in residential repair work. To take care of numerous present service calls this contractor has returned to the tools.

As more men become available, he expects to employ them on residential repair and conservation work. Inasmuch as he has always been able to show a profit in this field, this contractor expects to remain in business for the duration.

Case 4, Medium City

This well-established contractor, who formerly did only new work, already has switched to service exclusively. Operating a "shop-on-wheels," he does much repair work on stokers, oil burners and heating plants, and expects to sell stokers and oil burners after the war. His main problem is obtaining journeymen.

Case 5, Medium City

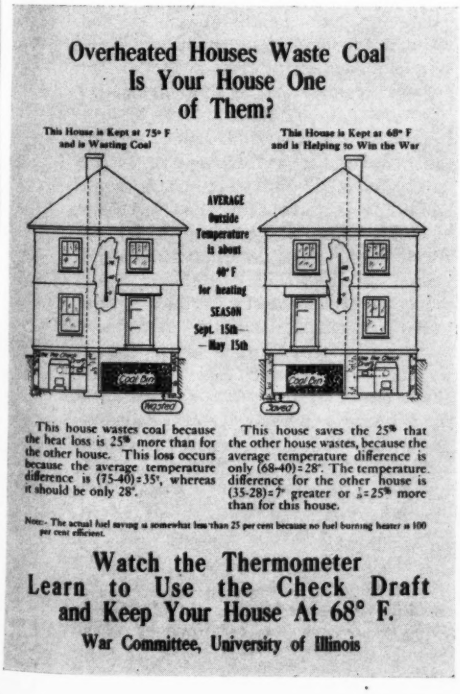
This is one of the contractors who are handling the big war jobs. He employs 150 men and has effectively solved the problem of supervision at locations far removed from the central office. He has jobs in large factories and in military establishments of several types. This firm will take con-

(Continued on Page 99)

The photo above was taken at a recent fuel conservation meeting in Detroit, sponsored by Research Products Corp., Madison, Wis., which was attended by 100 heating contractor-dealers. This meeting is reported fully on page 74. Shown above are Thomas Clark, of the J. S. Clark Co., Detroit; Fred R. Bishop, sales manager, the Brundage Co., Kalamazoo, Mich.; Kemper Slidell, president, Research Products Corp., Madison, Wis.; Nelson W. Ross, Research Products Corp., Madison, Wis. They are seen discussing problems associated with the national fuel conservation program

Leaders Express Views

Below is reproduced a large bulletin or sign which was issued, during World War I, by the War Committee of the University of Illinois. It was sent to DOMESTIC ENGINEERING by Dr. A. C. Willard, president of the University, whose statement appears in the column at right


Overheated Houses Waste Coal
Is Your House One of Them?
This House is Kept at 75° F and is Wasting Coal
This House is Kept at 68° F and is Helping to Win the War
AVERAGE Outside Temperature is about 40° F for heating SEASON Sept. 15th—May 15th
Coal Bin
Coal Bin
Registers
Registers
This house wastes coal because the heat loss is 25% more than for the other house. This loss occurs because the average temperature difference is (75-40)=35°, whereas it should be only 28°.
This house saves the 25% that the other house wastes, because the average temperature difference is only (68-40)=28°. The temperature difference for the other house is (35-28)=7° greater or 1/4=25% more than for this house.
Note:- The actual fuel saving is somewhat less than 25 per cent because no fuel burning heater is 100 per cent efficient.
Watch the Thermometer
Learn to Use the Check Draft
and Keep Your House At 68° F.
War Committee, University of Illinois

FOLLOWING is a special statement to DOMESTIC ENGINEERING by Dr. A. C. Willard, president of the University of Illinois and a past ASHVE president:

"The present national fuel saving campaign, sponsored by the War Service Committee of the American Society of Heating and Ventilating Engineers, is not only a most important war emergency measure, but it has also even greater social and economic significance for the future. I predict that the owners and tenants of millions of homes and other buildings are about to discover and put into practice under drastic wartime restrictions on fuel supplies both the facts and the ways and means for the more comfortable and economic heating of buildings on a scale never before possible.

"The professional heating and ventilating engineers of the country and the more progressive manufacturers and trade associations have spent millions of dollars in research

(Cont. on P. 104)

THE following statement on fuel conservation is by Gen. W. A. Danielson, member of the ASHVE War Service Committee:

"With the world ablaze, it seems strange that a large part of our country will suffer from the cold. Nevertheless this is true, and the war will be more forcibly brought home to a great number of people than perhaps in any other way. Whatever can be done to alleviate this is a matter of primary importance. The timely part that Domestic Engineering is taking for the national welfare merits our praise, and I am glad to add a word to what your organization is doing.

"The important points in fuel conservation have been well covered. The problem now is to get this information effectively to the householder and plant

(Continued on Page 98)

NEWS of Fuel Saving Campaign

"War has created a challenge for you of the heating and ventilating business, and for you whose job is to guard the community health. That is the dream opportunity of a lifetime! . . . Conservation of fuel . . . will create a quick market the magnitude of which is anybody's guess."

Ned Foulds, Chief,
Fuel Oil Section

AS SEPTEMBER—start of the heating season—approached, radio, the press, general magazines, government officials in a half dozen divisions and disinterested experts brought home to the American public the fact that fuel will be short this winter and that homes will be cold unless the necessary conservation measures are taken to prevent it. A most salutary influence was the announcement on August 31 that the Government has elected to control distribution of fuel oils this winter by a card rationing system, which would apply not only in the East, but in the central West as well.

Unprecedented demands for gas for heating brought a limiting order on deliveries of manufactured gas to new customers.

A number of measures were taken to speed the mining and delivery of coal.

On August 17 the Plumbing and Heating Branch warned that "home owners and plant operators should make immediate arrangements to obtain grates and stokers needed to convert oil burners and, at the same time, arrange to purchase the necessary amounts of coal."

On August 30, Howard A. Gray, acting director, Office of Solid Fuels Coordinator for War, urged consumers to delay no longer in the purchase and storage of coal.

On August 16, Petroleum Coordinator Ickes and OPA Administrator Henderson "agreed" that every user of oil heat in the eastern area should take immediate steps to prepare for a shortage

(Continued on Page 97)

Conservation Week

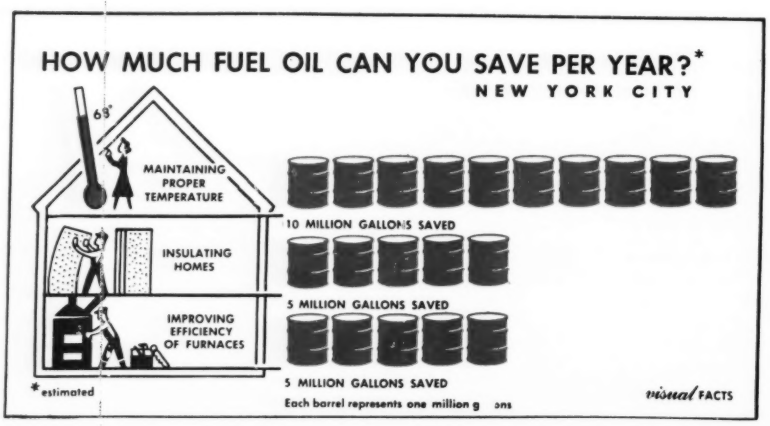
"WAR on Fuel Waste Week," sponsored by ASHVE in order to call public attention to impending fuel shortages and the need for conservation, was accorded broad publicity in the newspaper press, and cooperation was obtained also from various governors and other government officials.

The week was officially opened by a forum in the Hotel Pennsylvania, New York City, on August 17, with W. L. Fleisher, presiding as chairman. New York Mayor Fiorello H. LaGuardia told the assemblage that a fuel shortage will prove a serious menace to health this winter unless American home owners take precautionary steps.

Opening the meeting, Mr. Fleisher stated that the ASHVE War Service Committee has made a profound study of the fuel situation, with the assistance of all interested groups. "It is the purpose of our fuel conservation campaign to tell the public what to do and what to expect," he declared. "Ours is a patriotic duty without thought of political, commercial or financial gain."

W. Walter Timmis, chief of the Plumbing and Heating Branch, warned that conversion of oil heating plants must be made immediately if home owners are to obtain the necessary strategic materials used in such conversion jobs.

Dr. Luther Harr, bituminous coal's consumer counsel, stated that if four important steps are taken now, on a wide scale, they will produce enough savings of fuel to ease the pressure on the transportation system and virtually insure the homes of America against suffering. These four points, as stated, were insulation; installation of storm doors and windows; use of non-metallic



Illustrations such as that at left are useful in dramatizing fuel conservation in advertising. This one was furnished by Visual Facts, New York City

weather stripping; complete overhaul of heating equipment.

Ned Foulds, chief, Fuel Oil Section, Office of the Petroleum Coordinator for War, stated in part: "We have been promised a long war. I wish I could be as sure of a warm winter . . . but no wish ever stopped a torpedo aimed at a tanker nor moved an extra quart of oil by tank car, pipeline or barge. . . . Wishful thinking is out—we've got work to do.

"War has created a challenge for you of the heating and ventilating business, and for you whose job it is to guard the community health. That is the opportunity of a lifetime.

It would be crude business policy for anyone here to look upon the possible distress of thousands of families as the

(Continued on Page 96)

Rationing Plan

OIL BURNER INSTITUTE, trade association of oil heating equipment manufacturers, has proposed to Washington that the indicated fuel oil shortage on the East Coast be met with a plan for "equitable distribution" of fuel oil—as opposed to an arbitrary percentage cut—and has submitted such a plan for government consideration.

C. E. Lewis, president, summarized the Institute's viewpoint in the following letter addressed to Donald M. Nelson, WPB chairman; Harold Ickes, petroleum coordinator; and Joel Dean, plan for Government consideration.

"The Oil Burner Institute, through its engineering committee, has given careful consideration to the indicated shortage of fuel oil this coming winter and the problems concerned with a plan for its equitable distribution.

"A study has been made of the oil usage in well over 200 homes, and an analysis has been made of the curtailments in fuel oil through rationing and conservation that could be accomplished in these homes.

"A report is being prepared which will summarize the data collected and give our analysis of these data. This report should be ready in finished form at an early date and it is our intention to make it available to any of the Government agencies who are in a position to use it.

"A rationing plan involving a straight percentage cut from past usage is not equitable for the distribution of oil to the user. Such a plan is unfair to the user who has responded to Government appeals for conservation and who has already taken steps to reduce his fuel oil consumption. It is also unfair to the

(Continued on Page 95)

Contractors, Mfrs. Meet with WPB

THE new Plumbing and Heating Contractors' Industry Advisory Committee had its first meeting with the Plumbing and Heating Branch August 27 to review problems currently affecting the contractor and the retailer in the war program.

The discussion marked the first time plumbing and heating contractors as a full committee separate from other branches of the industry have conferred with WPB. In the new setup the contractors' sub-committee has been abolished and a full committee represents contractors and dealers in discussions with WPB. The contractors' committee, according to present plans, will meet with the chief of the Plumbing and Heating Branch at least once every two months to cover developments of current importance.

Members of the Contractors' Committee attending the meeting were: Edmund P. Ingram, Jersey City N. J.; Paul Greiner, Wheeling, W. Va.; Henry S. Blank, Dayton, Ohio;; John H. Zink, Baltimore; K. A. Stephenson, Atlanta; Louis Breer, Los Angeles; and Rupert J. Weber, Chicago. Other members of the committee, not in attendance, were: E. W. Verity, president, Almirall & Co., New York City, and John Butler, Philadelphia.

Major subject of discussion concerned excess stocks of materials in the hands

(Continued on Page 101)

Society Chairman

Following are the conservation comments of Prof. B. M. Woods, chairman of the ASHVE War Service Committee:

"Fuel is perhaps one of the most important of the critical materials which the home owner has thus far been asked to conserve and salvage. In the case of aluminum the individual was only requested to salvage pots, pans and other articles which were infrequently used. Tin cans which were previously discarded to refuse, could easily be saved without undue hardship. Scrap rubber and iron

(Continued on Page 104)

Right is a reproduction of a 9x12 in. card created by Spencer Heater Division of Aviation Mfg. Corp. to aid in the fuel conservation campaign. It is offered to all contractors who wish to display it. In addition, a large quantity of the signs will be printed in the form of contractor mailing pieces which will include, on the reverse side, a letter to carry the dealer's imprint. The letter states in part: "This fall every house heating plant will be placed in perfect condition. Not only is this a wise step to take—it is a patriotic one. Fuel cannot be wasted. But boilers and flues which are dirty waste fuel. Loose flue connections or cracked and broken boiler insulation waste fuel. Warped fire doors and grates waste fuel. And if the heating plant is old, rickety —gone far beyond its days of real usefulness—this will prove the greatest waster of all."

HOW to Give Your Customers Fuel Savings

Fuel Conservation Feature

Here are the things to look for and the things to do when carrying out fuel conservation surveys for your customers

THE success of the current fuel conservation program being carried on by our industry depends, to a large degree, upon the effectiveness of the "get-ready-for-winter work" now being undertaken by contractor-dealers everywhere. The following guide is to be considered as being just that; it sets forth in 1-2-3 style the things to look for when checking up on your customers' heating plants. It does not attempt to give instructions regarding the method of doing these things—such material can be found in the various service and instruction manuals issued by manufacturers of fuel pumps, oil burners, stokers, boilers, furnaces, insulation, piping, controls and other allied products and by the large fuel companies. All of these manufacturers are cooperating whole-heartedly in this important campaign.

* * *

Points to Check for Oil Burner Conservation

Oil burners should be given particular attention. Oil, according to the Office of Petroleum Coordinator for War, will be rationed in certain parts of the country this winter. Thus, it is the responsibility of our industry to see that all oil burners are operating at top efficiency in order that precious shipping space be spared.

1. Be sure to check the combustion chamber of the oil burner and also see if additional baffling will raise the plant's efficiency; with proper baffling the heat has a better chance of being absorbed before going up the chimney.

2. The proper size and angle of fuel nozzle is important. If the fuel nozzle is too small or too large excessive fuel consumption will result. The angle at which the nozzle is set also influences efficiency of oil combustion.

3. Oil tank, filters, oil lines and strainers should be cleaned in order to promote better efficiency. Unless the oil filters and fuel lines are kept clean and clear they can not function as they should. Any stoppage of oil upsets the balance between the fuel and the air.

4. Unburned fuel may be going up the stack before ignition takes place if the pilot is not functioning properly.

5. Warn your customers not to change their grade of fuel oil without letting you first make the proper adjustments to their burner.

6. Some of the older types of oil burners would show improved efficiency if a new type of air mixer was added.

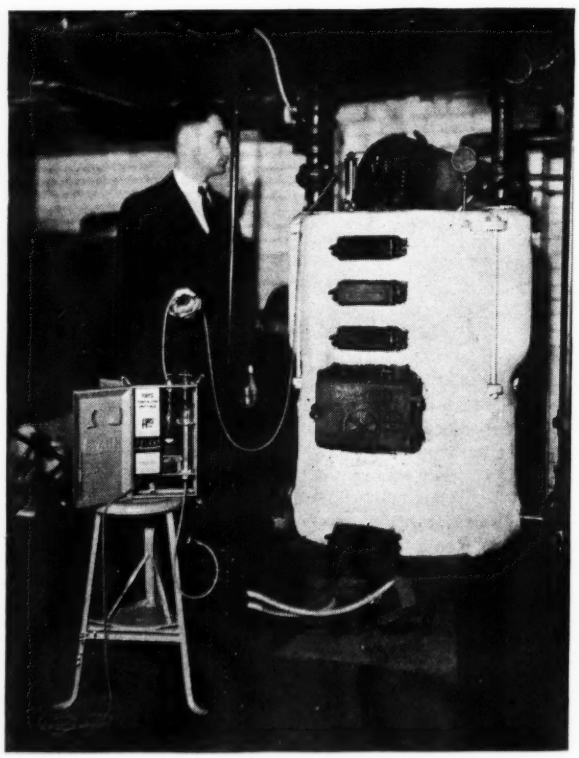
7. Leaky oil valves may cause "frying" and an attendant loss of fuel.

8. The entire oil burner should be completely cleaned.

9. All moving parts should be well lubricated.

10. For a maximum of economy, instruments should be installed in all oil burning installations for the guidance of the operator, while in the smaller plants portable instruments should be available for determining adjustments.

11. Check to see if the pump is delivering the oil properly. If not, the strainer may be clogged, the nozzle may be clogged or the shaft may be frozen. In each case, remove, clean and reassemble. There may be an air leak in the suction line from the tank. Other possible causes of failure in oil delivery may be due to a.



Combustion testing is one of the surest ways of finding out if your customer is getting every bit of heat from his fuel dollar

The little men in the picture above are looking for things which all contractors must seek out if the ultimate in fuel conservation is to be attained

suction line restricted; b. the oil level in the supply tank may be below the end of the suction line; c. the motor coupling may be loose or broken; d. the unit may be air bound, particularly if it is a single pipe job. In any event, where necessary check with the manufacturer's instructions.

12. If it appears that there is poor nozzle cut-off there may be an air leak in the suction line or there may be an air pocket between the cut-off valve and the nozzle. A stuck piston or a damaged nozzle or piston cut-off valve may be causes.

13. In case of an oil leak you may find that the strainer cover is not on tightly or the shaft seal may be damaged. Other causes should be checked from manufacturer's service sheet.

14. If high oil pressure is evidenced the motor may not be up to its rated speed. It is also possible that the plunger may be stuck or there may be a defective gauge.

15. Low oil pressure also may be caused by a defective gauge or by a motor not up to its rated capacity; another possibility is a nozzle greater than the capacity of the pump.

16. If there is pulsating pressure look at the strainer, it may be clogged or the strainer cover may not be tightened securely. Leaks in the suction line or loose pipe plugs may be causes.

Check-Up on Boilers, Piping and Radiation

The primary source of heat should also be the first place for the contractor to effect fuel savings.

1. Clean flyash and soot from all heating surfaces, both fire side and heat transfer surfaces. Methods to be employed are vacuum and brush systems where available.

2. Sludge, oil, lime and rust should be removed from boilers by the use of a boiler compound. Note addition of water in gauge glass. Blowing off may remedy some conditions.

3. Air leaks around the fire doors, ash doors, between the sections should be caulked to prevent the entrance of air to the firebox or to the boiler setting above the fuel bed. Make sure that chimneys and flue pipes are unobstructed and do not leak. Be sure that doors fit tight to frame.

4. In steam heating systems inspect the air relief valves or radiator traps. Also inspect the entire piping system for leaks and caulk them when found.

5. Insulation on exterior of boiler and on steam and hot water pipes should be checked for breaks; these should be repaired when they are found.

6. Water pockets in radiator connections should be eliminated in order to make proper circulation possible.

7. Check steam pipes to make certain that they have the proper pitch.

8. Rapid venting of radiators should be assured by the installation of modern air vents.

9. Lime-coated pipes should be cleaned or replaced.

10. Install reflective shields behind radiators and tell customer that radiators should be painted with an oil paint rather than finished in a gold or silver or other shiny metallic paint.

11. Set check drafts and, if necessary, install new baffles in the boiler to bring about correct flow of combustion products and highest efficiency in heat absorption.

12. Inspect for excess stack temperatures and check up on CO_2 and draft.

13. In commercial boilers, clean all tubes in fire tube boilers of accumulated soot and carbon scale. Such cleaning requires thorough scraping with a tube scraper or reamer. If you have the equipment available use power operated equipment.

14. Clean mud rings of water leg boilers by removing mud ring elements and flushing thoroughly.

15. Check all boiler settings of commercial boilers by the use of a smoke candle. All leaks in breechings, etc. should be properly caulked.

16. Inspect and test all radiator valves, riser vent valves, radiator traps, vacuum lines and pumps. Repair where possible, and where it is required install new fast venting radiator valves and also install, wherever necessary, new radiator traps or parts. In two-pipe systems install steam orifices for system balancing.

17. The end of the first operating season may find new steam boilers fouled with dirt, pipe joint paste, etc. Boiler should be cleaned according to manufacturer's instructions.

18. The chimney should also be inspected. It should have a uniform, smooth and unobstructed interior surface. It should be of the proper height and area and should be free from leaks from top to bottom.

19. Avoid leaks around smokepipe where it joins boiler and chimney. All joints should be sealed with boiler putty or asbestos cement.

20. All unused radiation and heating lines should be closed off and improperly sized radiators should be replaced.

The Building Heat-Loss Survey

It is a logical assumption that, if you can keep the heat inside the house you will need less of it; a few important points are brought out here.

1. Install insulation in walls, ceilings and attic spaces.

2. Weatherstrip windows, doors and access openings.

3. Install storm windows

The "Headquarters for Fuel Conservation" sign identifies your showroom as a vital part of the fuel conservation drive. The gentleman is R. L. Wagner, St. Charles, Ill., and it is his show window

and storm doors and enclose vestibules.

4. Shut off heat in unoccupied rooms.

5. Tell your customers to reduce the heat to at least 68 F where normal adults live and to 45 F in garages.

6. Seal up all cracks in stucco and brick.

7. Caulk door and window frames outside.

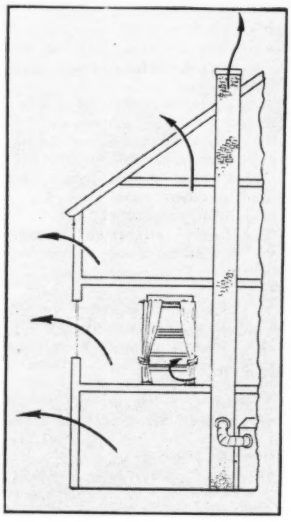
Commercial and Industrial

1. Caulk all openings in roofs, skylights, pent houses; tighten dampers to ventilator shafts, roof vents, fire and smoke vents, towers and lofts.

2. Use revolving doors with exterior or interior vestibule where heavy traffic allows excessive infiltration.

3. Operate ventilation plants at a minimum, relying on recirculation wherever possible.

4. Distribute heat by zones according to outdoor temperatures and occupancy demands.



The drawing above shows the many ways in which heat can be lost from a building. This article points out how these losses may be cut to a minimum

Check Lists for Fuel Savings . . .

6. The addition of a booster fan helps get the heat where it is wanted. View with suspicion any furnace which heats up but which still doesn't deliver heat to the rooms where needed.

7. Insulation of duct work prevents the dissipation of heat in places where it is not wanted.

8. Are the registers located in places where they can deliver the heat to the rooms where needed?

9. Examine the air filters; if they are dirty either clean or replace them. A clogged filter will stop up the whole system and will consequently waste fuel.

10. If system is not properly balanced a few adjustments of room dampers may result in considerable fuel savings.

11. Remove and thoroughly clean the water pan.

12. The blower control should be set so that it will remove all the air from the furnace that is comfortably warm.

13. Outside air should not be introduced to a warm air system. The air should be recirculated in the house 100 per cent.

Warm Air Systems

Filters, blowers and controls are the three important items in the servicing of warm air systems. There are many instructions, however, which the contractor can give the home owner regarding the operation of his plant which will save many fuel dollars; among these are ones covering the proper placing of furniture and rugs, thermostat setting and humidity control.

1. Air leaks around all doors and seams should be stopped with a good grade asbestos cement.

2. A check-up should be made on draft, CO_2 and stack temperature.

3. Excess stack temperature (the heat above the amount necessary to provide good draft) should be eliminated by the installation of a draft regulator.

4. Fuel savings can be brought about by proper humidity control. Dry air feels cooler at the same temperature than does air which is properly humidified.

5. Return ducts and air registers should be inspected to make sure they are clear of obstructions. Even furniture and rugs poorly located can cut down the return air to the furnace.

The photograph at the left illustrates one of the best ways of obtaining higher efficiencies from the boiler or furnace. Soot is an enemy of heat transfer

How to Bring Stoker to Maximum Efficiency

As with oil burners, the stoker should be brought to its highest peak of efficiency. There are many things to look for and it requires the service of a highly skilled mechanic and a complete set of service manuals if the job is to be done right.

1. Check air adjustment on the stoker. The amount of air fed into the heating plant must be adjusted to the rate of fuel feed so that enough air will be supplied to bring about complete combustion.

2. If size and type of coal is changed the stoker should be adjusted in order to obtain the highest possible efficiency.

3. Fuel will be wasted if the hold-fire control is not operating on a minimum of coal.

4. Remove the coal from the hopper and from the worm housing and clean and paint the inside.

5. Clean, test and oil the motor and give the fan unit a thorough checking over.

6. Flush the gear case and fill with an approved grade of lubricating oil.

7. Lubricate entire unit thoroughly.

8. Inspect V-belts and replace broken or frayed belts.

9. Instruct your customers along the following lines:

Keep a fairly deep fire bed.

Remove clinkers from fire bed every day as their presence prevents complete combustion.

Fire the coal at the proper rate; this determines to a large degree the efficiency which the heating plant will give you. (This firing rate can be checked and adjusted by the contractor.)

10. When stoker feeding rate and fan delivery are automatically modulated, furnace draft should be automatically controlled by overfire draft regulators.

11. Instruments such as draft gages and particularly under-grate pressure indicators are of utmost importance in proper operation of stokers.

Nelson Ross, engineer for Research Products Corp., Madison, Wis., tells an audience of heating contractors and manufacturers how air filters are constructed. The importance of clean air filters is pointed out here

Information received from the following companies aided DOMESTIC ENGINEERING in the compilation of the above guide:

The Hotstream Heater Co.
Research Products Corp.
Kewanee Boiler Corp.
Anthracite Industries
Delco Appliance Div., General Motors Corp.
Waterfilm Boilers, Inc.
The Iron Fireman Mfg. Co.
Timken Silent Automatic Div., Timken-Detroit Axle Co.
Petroleum Heat & Power Co.
Warren Webster & Co.
Delaware, Lackawanna & Western Coal Co.
Bituminous Coal Consumers' Counsel
Catskill Metal Works, Inc.
Williams Oil-O-Matic Heating Corp.
Agnew & Tomlinson
Sundstrand Engineering Co.

Converting from Oil to Coal

These fundamental service, maintenance rules should be kept available for reference by journeyman and contractor

The heating contractor with a well defined plan of action to follow and recommendations to make when making surveys of conversion jobs is in a position to render more efficient service and, consequently, to save considerable time and prevent confusion.

The set of rules printed below, which can serve as a guide, was developed following a survey of 1,000 heating plants which disclosed that approximately 80 per cent of the oil burning boilers and furnaces now in use can be converted to the use of coal. This 80 per cent consists of units formerly converted from coal to oil and those units with an enclosing jacket and a conversion-type oil burner; this latter type is usually a standard type boiler to which the manufacturer has added an oil burner. The remaining 20 per cent which does not lend itself to conversion consists of units which were designed with the burner as an integral part of the boiler. The doors in these units are usually not large enough for firing with coal.

When your customer's boiler can be converted from coal to oil the following is the proper step-by-step procedure:

1. When the boiler is of the type that formerly had grates the contractor should first find out if the original grates are still available and if the lug bolts, which support the grates in the boiler, are still intact.

2. If the original grates are not available but the lug bolts are still in place it is a simple matter to install new grates either from stock or by purchase from the manufacturer of the boiler.

3. If the grate lugs have been removed and the boiler manufacturer can not furnish standard grates the contractor can get one of the special grates which are being manufactured by several companies.

4. Substantially all of the projected grate area as found in the original boiler should be utilized.

5. The equipment should be capable of producing an output equivalent to a burning rate of 7 lb per hour per original square foot of boiler area.

6. The equipment should also include a shaking or dumping grate capable of handling the ashes without dependency upon clinkering properties or the necessity for removal of any part of the refuse or ash through the firing door.

7. Reasonably convenient coal and ash handling facilities should be provided.

The last four points recently were set up as a guide to the industry in recommending grate equipment when coal utilization engineers met to discuss the conversion problems facing the country.

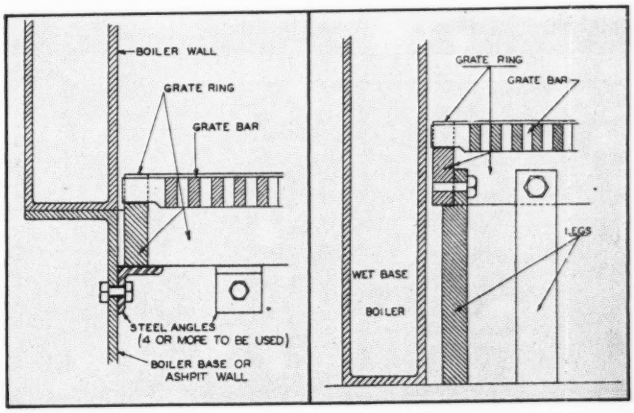
The installation of special round conversion grates is a comparatively simple matter when the "What-to-do" has been explained. The grates divide into two halves which are held together by bolts; when the bolts are removed and the lug bolts within the heating unit are in place it is possible to insert the two halves through the fire door and to reassemble and place the grates upon the lugs. With the shaker bar connected, the installation is complete.

Directions for installation of grates without grate lugs already in place have been made available by Anthracite Industries. In cases where the installation must be made in a furnace or boiler without the lugs there are two methods available for supporting the ring.

First there are side wall supports. Four small pieces of angle iron (approximately 1½ by 1½ by ¼ in. is recommended) are cut and drilled to form brackets which are bolted to the ashpit sidewalls as shown in Figure 1. These supports should be placed at such a level as to give maximum fuel-bed depth without restricting ashpit capacity. On boilers the grates should not be set below the base of the water leg. Having installed this ring the remainder of the installation work is the same as for boilers with lugs.

The second method by which they may be installed is with leg supports, where sidewall brackets are impractical. This is shown in Figure 2. Four legs are cut to the desired length and then fastened to the grate ring by drilling, tapping and bolting. Care should be exercised to locate all legs at the sides of the ashpit where they will be less likely to receive repeated hard blows from the shovel. Installation is completed as before, once the legs are in place.

The drawings below (Figures 1 and 2) show how conversion grates are installed in boilers



CONTRACTOR

The heating and plumbing contractor is the vital point-of-sale contact with the public on all matters of fuel conservation. Without his cooperation and active leadership, no fuel conservation program can hope to succeed, for he alone has the knowledge and technical skill to translate the customer's desire to save fuel into an actuality.

The photographs and captions on these pages show how many heating and plumbing contractor-dealers are accepting leadership in the fuel conservation movement. The article below should assist contractors in obtaining cooperation from home owners. It is suggested that this article be handed to the editors of local newspapers to publish in their earliest possible issues.—Ed.

A STRONG public recommendation of the heating contractor as the man to call for conversion heating work has been made by the National Better Business Bureau in a release to newspapers and magazines.

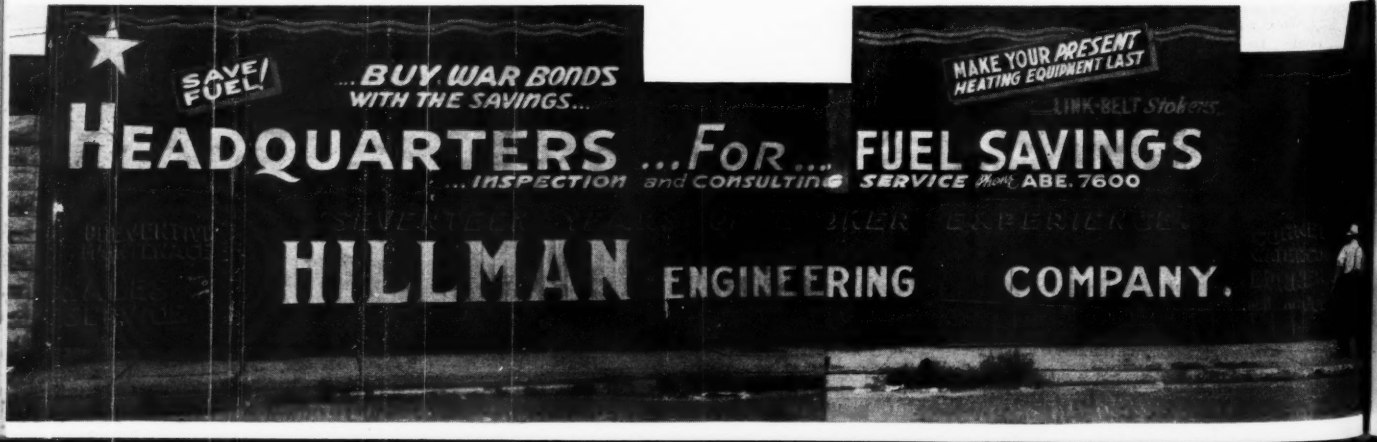
With the government making a ready market for the manufacturers and distributors of converting devices through its appeal to home owners to convert their furnaces back to coal, false, misleading and extravagant claims are being made in advertising, according to the Bureau, in the scramble for customers.

In his word of caution to home owners, Edward L. Greene, general manager of the National Better Business Bureau, stated:

"It is earnestly hoped that every home owner will cooperate with the government in its effort to meet the fuel oil crisis by converting his oil burning furnace to coal wherever this is practicable. Conversions should be made as soon as possible so as to assist in the orderly adjustment of a situation made necessary by the war.

"In making the conversion, home owners are reminded of the fact that their heating plant is not a gadget to be tampered with by amateurs or well-meaning bunglers. Before tinkering

Inspired by the "Headquarters" banner in his window (right), Otto Hillman of Hillman Engineering Co., Chicago orders the double billboard adjoining his showroom painted in a similar theme (see photo, left). The complete job, which was designed with the assistance of the Domestic Engineering advertising department, is seen below. The display was so large that it was necessary to take two photos and place them together in order to show both ends.



R Is Headquarter

with your furnace, or permitting anyone else to tinker with it, consult a reliable heating engineer or contractor and get his advice on the most practical type of conversion apparatus that is suitable for your particular furnace.

"If you have your original grate and the grate lugs are intact, have a reliable dealer reinstall your grate. If your grate lugs are intact but you do not have the original grate, order standard grates from the boiler manufacturer or a reliable local heating contractor and authorize him to install them at once. If your grate lugs are not intact and standard grates are not available, consult a reliable heating engineer or contractor with respect to the most practical means of converting your particular furnace to coal.

Reliable Contractor

"It is the patriotic privilege of every American home owner on the eastern seaboard to convert his heating plant for the use of coal wherever this is practicable. It also is the duty of intelligent consumers to seek the advice of competent heating engineers or contractors in making this major operation on their heating plants. A furnace properly converted for the use of coal will keep any home warm during the coldest weather, but if the conversion is a make-shift arrangement built in defiance of the laws of physics, the amount of heat produced will be woefully inadequate."

Valuable Article

See Page 62 of this issue for an unusually worthwhile section entitled 'The Contractor's Answer to the Problem of Fuel Rationing".

Photo at top of facing page: Portion of the show window of Hahn Plumbing Co. in Milwaukee

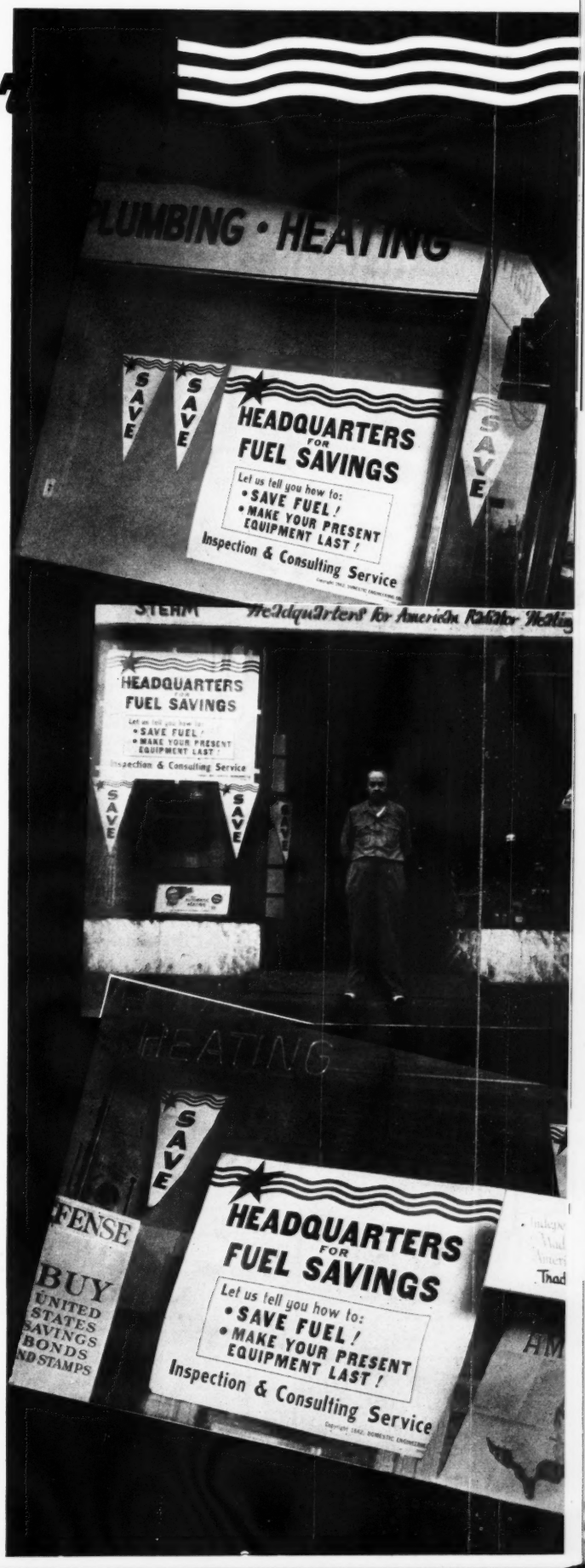
Photo at top right on this page: Show window of Fred Bailey, in Rockford, Ill.

Center photo at right: Charles E. Weston, manager, American Home Heating Co. in doorway of the company's showroom in Buffalo.

Photo below right: Window of M. A. Toussaint, Madison, Wis.

Photo below (left): "Headquarters" sign in show window of Hyland, Hall & Company, Madison, Wis.

A few copies of the "Headquarters for Fuel Savings" displays are still available free to contractors who receive Domestic Engineering. The display, which is printed in red and blue on a white background, consists of the large sign and six pennants. First come, first served. The supply is limited.



Goss Goes and Gets Them...

Approaching a half-century of service to the public, this contractor-dealer builds and maintains his volume almost exclusively on check-up, maintenance and repair work. By avoiding dizzy peaks in profits he also avoids the valleys

IT'S the average volume curve extending over a period of years that concerns William P. Goss, head of the San Francisco plumbing and heating firm of that name. With a keen eye he's watched it rise, gradually, then level off momentarily, only to resume the climb. Steep hills and dizzy-deep valleys have been totally absent. Progress of the meteoric variety, then the compensating dip—an economic phenomenon as inevitable as the tides—these are definitely out.

By avoiding the tempting lure of promising-looking contracts, Mr. Goss has escaped the evils following in the wake of over-expansion based on a volume of business that fails to hold. And here's the net result: he's been in business continuously since 1906; and his volume for the past twelve months is close to $60,000.

There's no mystic formula to which he adheres; it's no secret with him, at all; nor has he any mysterious business "lines" out in any direction. He remains in business, continues his modest-profit policy and maintains his volume curve at a satisfactory level simply on check-up, maintenance and repair work. That accounts for 90 per cent of his business. He points out that he could handle more if he could secure additional men to drive the three trucks now laid up, and perform the added work made possible through the employment of such additional equipment. Four panel-body trucks attractively lettered in cream, red and green, carry the gospel of Goss throughout San Francisco, mainly in that part of the city where his establishment is situated

8 9 10 11 12 1 2 3 4 5
PHONE MESSAGE
DATE
FOR
FROM MR.
ADDRESS
C. O. D
FREE
Summer Special
PLUMBING INSPECTION
NO OBLIGATION!
• PLUMBING LEAKS ARE "DOLLARS" WASHING DOWN YOUR DRAIN! For instance, one drippy faucet—if hot water—can readily waste $2 in fuel monthly. One leaky toilet can increase your water bill $3 quarterly. Faulty plumbing when neglected or fixed by makeshift tinkering, not only leads to ruined fixtures, costly repairs and replacements—but HIGH WATER AND FUEL BILLS.
• TODAY ... call our professionally-trained, SEXAUER-SYSTEM SALES AND SERVICEMAN to check for costly leaks. He brings his portable SEXAUER SYSTEM (advertised in the Saturday Evening Post) containing Sexauer Precision Tools and 1326 Replacement Parts that are guaranteed Triple Wear.
SEXAUER SYSTEM
• He is equipped to do a better job, in less time, at less cost—with no more needless trips back to the shop.
• We use, recommend and sell MULE-KICK for slow drains, MULE-KICK for stained toilet bowls, MULE-KICK Beauty Creme for bath and kitchen fixtures. Approved by Good Housekeeping.
Wm. P. Goss CO
PLUMBING - HEATING
BAyview 8282
4640 GEARY BLVD.
NOTICE
Our Service Man called at ... M and found no one at home. Kindly telephone our office BAyview 8282 and advise us when he may call again.
Ask for Truck No. ... Service Ma
WILLIAM P. GOSS & C
4640 Geary Boulevard San Francisco,
Licensed by City and State
CERTIFIED HEATING
Everything in Heating
Steam Heating Systems
Hot Water Heating Systems
Warm Air Heating
Floor Furnaces
Circulating Heaters
Radiantfire Heaters
All Gas-fired Equipment Approved by the A.G.A.
REGISTERED PLUMBING
All Plumbing Repairs
Alteration Work
Plumbing Fixtures and Brass Goods
All Makes of Automatic Hot Water Heaters, Sales and Service
SHEET METAL WORK
Chimney Tops and Extensions. Ventilating.
"Since 1906"
EMERGENCY VALVE
In case of a leak, shut off this valve and call
BAyview 8282
(24-hour phone service)
WILLIAM P. GOSS CO.
"Since 1906"
4640 Geary Boulevard
San Francisco
Registered Plumbing
Certified Heating
Expert Repair Service
NOW!
24 Hour Phone Service
BAyview 8282
THIS INSTALLATION MADE BY
WM. P. GOSS & CO.
4640 Geary Blvd. SAN FRANCISCO
[redacted] BAyview 8282
Date ... Installer ...
We do everything in
PLUMBING — SHEET METAL — HEATING

SERVICE

The material at the left is typical of that used by Mr. Goss in keeping his name constantly before his public

...and Holds Them With Service

Part of the Goss organization's trucking force is shown in the photograph at the right. At the present time three of these trucks are laid up due to lack of skilled journeymen-salesmen. The other trucks carry the "Gospel of Goss" throughout San Francisco. They are attractively lettered in green, red and cream

and the majority of his customers reside.

A close student of the cost structure as it applies to his own customers, his shop, equipment and business policy, Mr. Goss has arrived at an average-trip-distance charge for his service trucks and journeymen that has proved equitable for all concerned. Such is the variety of fittings and accessories carried in each truck, that every trip, outside of traveling time, accounts for a maximum of service rendered. Charges for such services are based on a rate of $3.00 for the first hour, and $2.75 thereafter.

In common with thousands of other master plumbers throughout the country, the Goss organization is today placing the accent on the latter half of its own slogan—First We Sell, Then We Service. The Goss ledgers carry the names of 2,300 customers; many of them are long-time patrons. Just how or why they went to Goss for their first tub, lavatory, water heater or remodeling job, is neither here nor there; but why they've gone back, again and again, throughout the intervening years, is something else. The answer is summed up in Mr. Goss' own words: "It may sound pretty trite, but I go after business, and I always have, in exactly the way I'd like to be approached if I were the customer.

"What I mean is this: when my journeyman comes back to the shop after doing a little emergency repair job, and he reports, for example, that the customer's hot water lines are in poor shape—all scaled up—then I get busy with the customer. I get hold of a short piece of half-inch galvanized that was removed for the same reason the present customer's line should be replaced; and I show it to him, explaining just how such condition arises. I tell him how long it has taken; and as I already know how long his hot water line has been in place I can usually predict — as any experienced master plumber could—how long it will be before the line gives out. And," adds Goss with a grim chuckle, "I can usually promise him it will be almost any day now." . . . "Then when the job is done, I show the owner a length of his old line, invariably scaled up so the opening is the size of a ten-penny nail; I explain this is why he used to get no more than a trickle of hot water. More than that, I suggest he watch his gas bills for the next few months to see if the job hasn't actually cut them down."

The customer approach employed by Mr. Goss differs only in the means, never in the end. The end-point of his business-building activities is always pointed toward the angle of forestalling heavy repair bills and raising the performance of the installation—this to be accomplished through timely repairs or replacements. "When the customer holds any doubt about having a required job done now, I don't urge him; instead, I point out that, for such and such reason — mainly the element of natural depreciation—the fixture or the line or whatever it is, is due for an early failure, and that such failure will run into repairs whose cost will exceed that of the work now proposed."

Today more than ever, this San Francisco master is going after business through the only channel now available, and that is, as he puts, to "repair and maintain what you have; we can't sell you a new one." And the war effort is adding punch to this argument as nothing else can. . . . But, as you say, he has more work than he can handle now; so why does he go after more? That's easy; he goes after more business for two reasons. One is to maintain contact with his customers, and keep his name before them; the other reason is to keep a certain amount of work ahead—in other words, preserve the general direction of his volume curve. And while, due to wartime conditions, this curve may not surge suddenly upward, nevertheless it is holding steadily in an upward direction. And it's check-up, maintenance and repair work that makes it possible.

Location of Unit Heaters and Calculation of Sizes . . .

LET us assume that we have been asked to figure the heating equipment required, and furnish an estimate of the cost of heating for a remodel job, located in the lower Great Lakes region.

The building is a wing of an existing building, rather old, and it has been used mainly for storage for several years.

The wing is 174 ft long, 81 ft wide, and is open to the rest of the building, which is heated, along one 81 ft side. The walls are 12 in. brick, roof is built up roofing on 1 in. board, floor is 4 in. concrete. Side walls are 12 ft high, and it is 19 ft from floor to roof at the monitor, which is 5 ft high. There are 50 windows and two doors in the side walls and a continuous window in the monitor. Monitor extends the full length of the wing.

In the center of the floor area, under the monitor, is a line of processing equipment that gives off approximately 550,000 Btu per hour. This equipment is an integral part of the plant equipment, and is in operation whenever men are working in the space.

The plant owner wants to maintain 65 F during working hours, and will be satisfied with 50 F during off periods. The plant runs two eight hour shifts per day, five days a week.

Editor's Note. This was before Pearl Harbor.

Design outside temperature is —10 F. Degree days at 65 F. —6200. Degree days at 50 F. —2407.

Note: The following calculations are based on slide rule accuracy only.

The heat transmission factors are:

Wall	.36	
Glass	1.1	
Roof	.49	
Floor	.9	Ground under floor assumed to be 50 F.

Infiltration ½ air change per hour.

Btu heat loss at 65 F inside

Wall	5500 x 75 x .36	148,500
Glass	1941 x 75 x 1.1	160,100
Floor	14100 x 15 x .9	190,400
Roof	14500 x 75 x .49	532,900
	232,380	156,900
Infil.	$.018 \times 75 \times \frac{}{2}$	
	total	1,188,800
	Internal heat gain	550,000
	Net Btu loss	638,800

Going through the same calculations for 50 F inside design temperature, we find the heat loss to be 807,000 Btu per hr. As far as heat loss is concerned then, we will have to provide unit heaters to take care of the hourly Btu loss at 50 F.

The units will have to be vented, so the Btu input of the units will be

$\frac{807,000}{.80}$ or 1,000,000.

If we use units of 200,000 Btu input each, we will need $\frac{1,000,000}{200,000}$ or 5 units.

There are no cranes or other obstructions, so we can hang the units 9 feet from the floor. For 60 F we will assume 5 air changes per hour, so the unit heaters must move $14100 \times 9 \times 5$ or 634,500 cubic feet per hour $\frac{634,500}{60}$ equals 10575 cfm. The rating of the 200,000 Btu unit is 2500 cfm 5×2500 equals 12,500 cmf so five units will move enough air.

From the table on floor area covered by unit heaters (Page 52, June 1942, DOMESTIC ENGINEERING) we see that a 200,000 Btu input unit heater will cover about 2200 square feet. For this room we will need

$\frac{14100}{2200}$ or 6.3 units

Since the center of the building has heat producing equipment in it, which operates all the time, we had better spot our units around the outside walls. There is a large shipping door near one end of the exposed narrow side of the building, so we will start at that corner to move the air in the building. We will locate one unit so that it sweeps air across this doorway (not directly at it) and then pick up the air with the next unit heater and keep it in circulation in a clockwise direction around the room.

When we check the perimeter of the building against the number of units

Seasonal Gas Consumption—(Natural Gas—1000 B.t.u./cu.ft.)

Max. hourly heat loss, working hours: 1,188,800 B.t.u./hr.
internal heat gain 550,000
net loss 638,800

Working hours—two 8 hour shifts per day.

Start-up	1 hr
1st. shift	8 "
Lunch	1 "
2nd. shift	8 "
Lunch	1 "
Total	19 " per day—5 days per week.

$\frac{19 \times 65 \times 5}{65 \times 7} = 13.57$ Average degree hours per day for each zero degree day at temperature of room during working hours.

$\frac{638,800 \times 6200 \times 13.57}{1000 \times .80 \times 60} =$ 1,120,000 cu.ft. of gas (1000 B.t.u./ cu.ft. Natural Gas)

Hourly B.t.u. loss at 50° F. 807,000 B.t.u./hr.

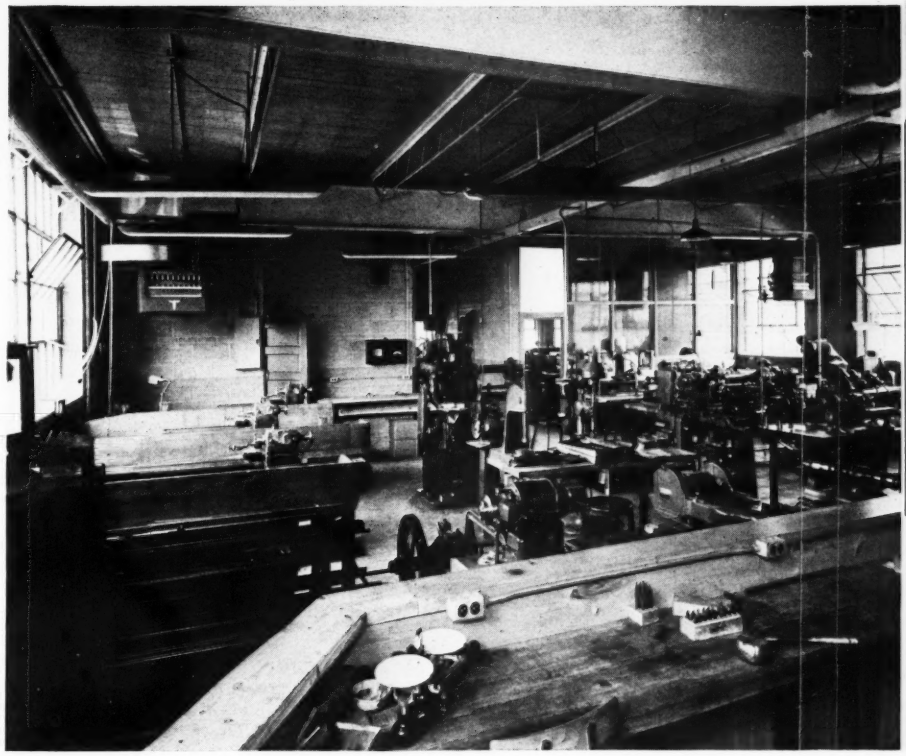
Off hours—
5 hours per day 5 days per week— 5 x 50 x 5—1250
24 " " " 1 day " " 24 x 50 x 1—1200
24 " " " 1 " " " 24 x 50 x 1—1200
Total 3650

$\frac{3650}{50 \times 7} = 10.43$ Av. degree hours per day for each zero degree day at temperature of room during off hours.

$\frac{807,000 \times 2407 \times 10.43}{1000 \times .80 \times 45}$ equals 564,000 cu.ft. of gas.

1,120,000 cu.ft.
564,000 cu.ft.
Total Consumption 1,684,000 cu.ft.
1,685 M cu.ft. at $.50 per M cu.ft. $842.00 annual heating cost.

The table at the left shows the calculations which have been made in order to arrive at the proper number and size of heaters for the job described here



The photograph at the right shows one section of the interior of a newly constructed plant. Note the two unit heaters placed along the outside walls and directed so that the stream blows across the windows

selected so far, we find we have

174
174 510 equals 85 foot throw per unit
81 ——
81 6

——

510 feet perimeter

This is considerably farther than this type and size of unit heater can throw heated air, so we must increase the number of units to eight. To keep the Btu output as near the figured heat loss of the building as possible we drop to a 170,000 or 175,000 Btu unit heaters. This gives us more Btu input than we expected to use, but comes closest to satisfying all the requirements of the job.

After quite a bit of mathematics, some cut and try, and some common sense have been applied to the problem we finally come to the final answer —eight unit heaters of 170,000 or 175,000 Btu input each.

Because the heat coming from the equipment in the center of the building may not spread evenly through the space, but shift one way or another, depending on wind direction, opening of the shipping door, intermittent moving or stacking of hot metal parts coming from the last machine in the line, etc., it would be advisable to provide a thermostat for each individual unit heater. This will keep temperature conditions as uniform as possible.

If we find that the shipping door is going to have to remain open for fairly long intervals, and that there will be men working close to it, that is, men other than those actually moving goods to or through the door, it might be well to suggest an alternate installation layout. The units can be placed back to back down the center of the long way of the building, and an extra 85,000 Btu input unit heater can be spotted to sweep heated air across the shipping door. Spotting the units this way might show a slight economy of operation during working hours, as it would tend to pull the heated air from the center of the building and make more efficient use of it. On the other hand, it would increase the temperature difference through the wall, and this might increase fuel consumption during shut down periods.

An analysis of the various types of gas fired equipment (air heating type only) shows that this industrial space heating equipment can be classified into two main types, namely: 1. Suspended and 2. Floor Mounted. Propeller type unit heaters are, in the main, designed for suspended installation. Their many advantages in ease of installation, low original cost and maintenance costs, and in flexibility, are well known throughout the industry.

Not only are they good for complete plant heating but also they save money, time and trouble in plants where they are used as supplementary heating systems, or in cases where spot or limited area heating is desirable. In the latter case, many interesting applications have been developed where units have been mounted on movable platforms and using flexible supply and flue connections.

Blower type heaters are used much the same as propeller units. Because of the blower-type fans, however, they have the added advantage of being characteristically able to handle larger quantities of air and to be used with or without ductwork. Many special problems in plant heating can be easily accomplished with these units.

Unit heater heating sections stripped of casing, blowers and motors, but retaining the gas controls, burners and pilots are known as duct type heaters. They are for installation directly into new or existing ductwork and receive the air to be heated directly from a centrally located fan.

For extremely heavy duty work, large blower-type unit heaters ranging in output capacities from 250,000 to 1,500,000 Btu per hour are obtainable. These are used in airplane hangars, mills, etc., where it is necessary to suspend the units.

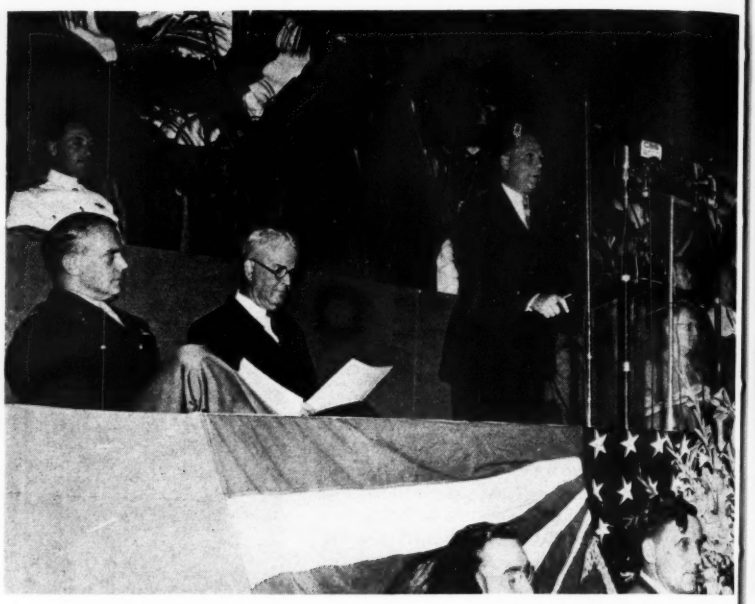
Floor-mounted gravity and forced air circulators are available in a wide variety of sizes and types. These range from the gravity circulator with a Btu per hour input of from 6,000 to 85,000 up to the heavy duty blower type with a 250,000 to 1,500,000 Btu input per hour. Between these two types are the vertical blower type, the forced air circulator, and the central furnace blower type. The central system is particularly adaptable where several rooms are to be heated with one unit.

Typical example of methods used for proper calculation of sizes of unit heaters and directions for placing them are given in this final article

Awards . . .

THE photos herewith show presentation of various patriotic awards made to companies in the plumbing and heating industry.

In addition to those shown, the following companies have recently been designated for Army and Navy "E's": Williams Oil-O-Matic Heating Corp., Bloomington, Ill.; Richmond, Calif., and Newark, N. J., plants of Rheem Manufacturing Co.; Bethlehem Foundry & Machine Co., Bethlehem, Pa.; Tube-Turns, Inc., Louisville.



Above: Minneapolis-Honeywell Regulator Company, Minneapolis, receives the joint Army-Navy "E." Left to right are Brig. Gen. Donald Armstrong, chief of the Chicago Ordnance District; Lyman E. Wakefield, president of the First National Bank and Trust Company, Minneapolis, and Harold W. Sweatt, president of Minneapolis-Honeywell (speaking)

Latest Washington news developments on topics of . . . .

Prices and Priorities . . .

Service Prices

Washington, D. C., August 14—OPA today issued a revised Consumer Service Regulation No. 165 which removed plumbing and heating (as a part of the repair, construction and maintenance of buildings) from the special price ceilings on services. Mr. Henderson indicated that building services later would be covered by special orders.

Nevertheless, the net effect, in the meantime is to place the service work of plumbing and heating contractors back under the General Maximum Price Regulation.

Under this regulation, the contractor may not exceed his highest prices of March 1942. If the commodity or service is identical to a commodity or service sold in March 1942, there would be little difficulty in abiding by the ceiling. If the commodity or service is not identical, however, the contractor should base his price, first, on a similar commodity or service most nearly like it which was sold at that time.

If the contractor did not deal in same or similar commodities or services during March, he sets his price according to the price of the most closely competitive seller of the same class.

When the new regulation pertaining to building services is issued, DOMESTIC ENGINEERING will publicize it.

Gas Heating

Washington, D. C., August 25—Stating that the oil shortage is increasing demands for manufactured gas, WPB has issued a new order (L-174) designed to cope with gas shortages expected this winter.

The order is a companion to L-31, on natural and mixed gas, which was issued last winter.

While both L-174 and L-31 apply to *delivery of gas*, their effect, of course, is to restrict the sale of gas-fired equipment.

After September 1, 1942, no gas may be delivered to a non-residential consumer for the operation of any gas-fired equipment which was not operated either by the consumer or on the same premises prior to that date, unless (a) the capacity of the new equipment is less than 150 cu ft per hour, or (b) the new equipment replaces existing gas-fuel equipment of the same or greater capacity or (c) the Director General for Operations of WPB grants approval for the delivery of gas for the new equipment.

Any person who thinks that the curtailment or prohibition of gas deliveries provided by the order will interfere with war production or essential civilian services may apply for relief to WPB. All communications should be addressed to the Power Branch, War Production Board, Washington, D. C., Ref. L-174.

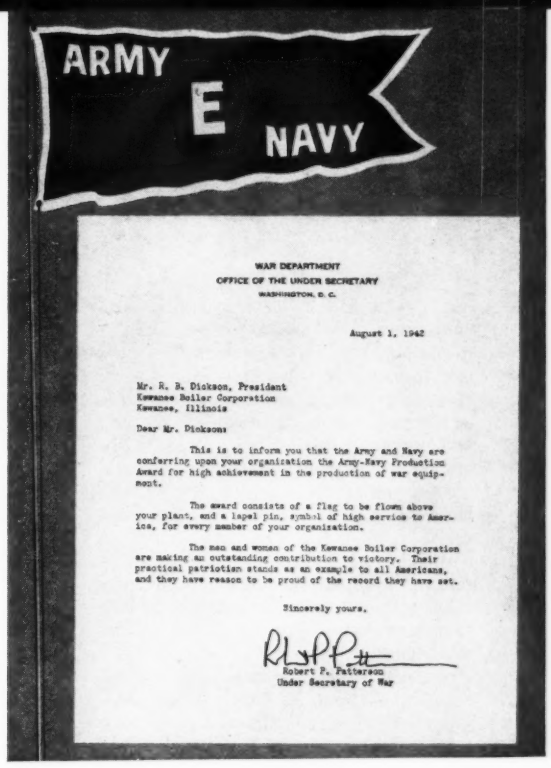
Any utility which feels that its capacity as well as its fuel supply are sufficient to take care of all existing as well as estimated future requirements of war industry and unrestricted civilian use, may apply to WPB for exemption from the provision of this order.

Copper Purchasing

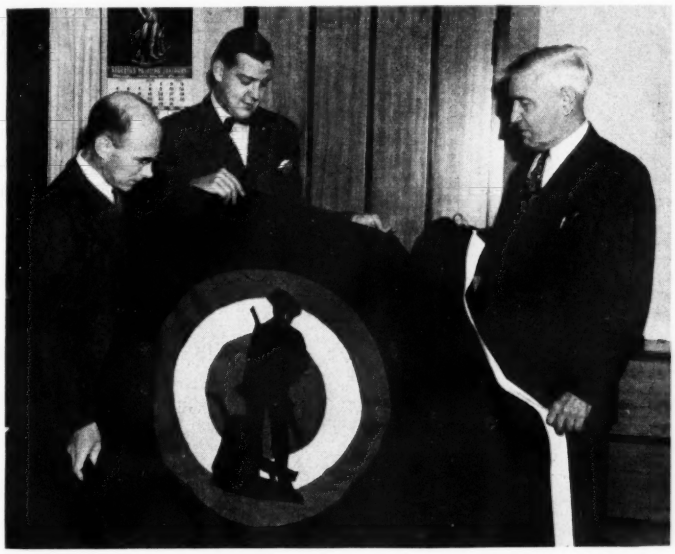
Washington, D. C., August 26—Following a nation-wide inventory of copper and copper base alloy products, WPB now has issued a new "order blank" which is planned to facilitate the purchase of copper, by those having the necessary preference ratings, from owners of frozen, excess or idle inventories.

The blank is Form PD-595. While the

Minute man flag presentation to Hammond Brass Works, Hammond, Ind.: Sales Mgr. W. M. Elston; Pres. Sam Greenwald; W. P. Murray (chairman War Bond Staff) and Vice Pres. J. F. Lammering. Recently, the company bought $50,000 in bonds at a Governor's Breakfast in Hammond


ARMY
E
NAVY
WAR DEPARTMENT
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D. C.
August 1, 1942
Mr. R. B. Dickson, President
Kewanee Boiler Corporation
Kewanee, Illinois
Dear Mr. Dickson:
This is to inform you that the Army and Navy are conferring upon your organization the Army-Navy Production Award for high achievement in the production of war equipment.
The award consists of a flag to be flown above your plant, and a lapel pin, symbol of high service to America, for every member of your organization.
The men and women of the Kewanee Boiler Corporation are making an outstanding contribution to victory. Their practical patriotism stands as an example to all Americans, and they have reason to be proud of the record they have set.
Sincerely yours,
Robert P. Patterson
Under Secretary of War

Above: Reproduction of front cover of brochure issued by Kewanee Boiler Corporation, Kewanee, Ill., upon presentation of the joint Army-Navy "E" to the company



R. N. Trane, president of The Trane Company, La Crosse, Wis., receives the first 10 per cent Minute Man flag awarded in our industry. This flag indicates that employees are regularly investing 10 per cent of company payroll in war bonds. At left are L. A. Trumble, advertising manager, and R. J. Trane, assistant treasurer

J. A. Butler, factory manager, and J. F. Lund, advertising manager, with Ordnance Award given The Dole Valve Company, Chicago

copper branch owns no metal, it does act to bring prospective purchasers together with persons who have metal for sale. Detailed inventory lists of available metal may be seen at any WPB field office.

Suspension Order

Washington, D. C., August 26—In one of the first actions of this type, WPB has enjoined an Ohio contractor and real estate dealer from completing three houses on which he is alleged to have begun work subsequent to April 9. WPB Suspension Order S-87 has been issued under the terms of L-41.

Concentration

Washington, D. C., August 26—To implement WPB's "concentration of production" policy, under which production of common items will be concentrated into the hands of a few manufacturers, a committee to direct this process has been appointed. Joseph L. Weiner, director of the Office of Civilian Supply, is chairman.

The committee will have general charge of the concentration program, determining, on information supplied by the Director General for Operations, which industries are to be concentrated.

Space Heaters

Washington, D. C., August 5—WPB today issued Limitation Order L-173 cutting off further production of domes-

(Continued on Page 97)

Put and Take....With Quail

This contractor-dealer estimates he has shot as many quail as any man alive; now he is putting them back—with interest

A HUNTER and all-around sportsman who is interested enough in his hobby to help replenish the fields and forests with wild life—that is Sam Hester, proprietor of Hester Plumbing & Heating Company, Birmingham, Ala., and president of the Birmingham Association of Master Plumbers.

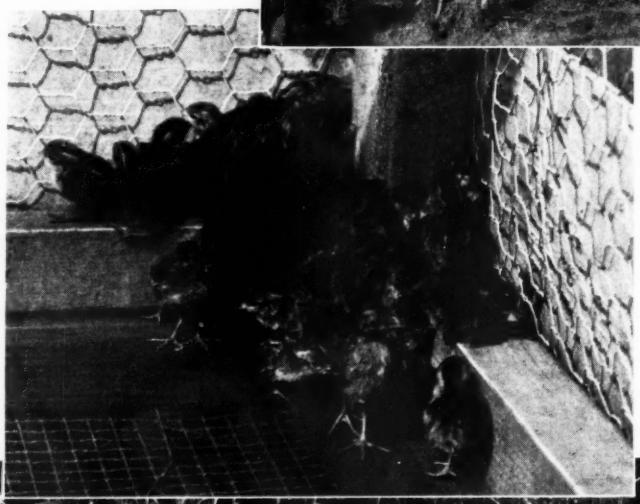
Right now, in his own backyard, Mr. Hester is raising quails by the hundreds to be turned loose on his own 9,000 acre preserve, as well as to give to any farmer who will provide a range for them. The "bob white" call of this bird is music to his ears and in his time he reckons he has shot as many as any living man. But now he is raising them faster than he is shooting them.

Also as a charter member of the Jefferson County Sportsmen's Association he is actively helping to stock wild areas with deer, turkey and guineas. Not to overlook the fishermen, this same organization has planted more than 3,000,000 bass, trout, bream and other species in the streams of the area. To be seen on Mr. Hester's own preserve are many deers and turkeys. One of the pets at his six-room hunting cottage is a fawn which is tame enough to eat out of his hands.

But back to the quail. When he first started out he had to buy the eggs and pay 20 cents apiece for them, which is pretty high for a marble-sized egg. But he now has enough mated birds to grow his own eggs. He uses bantam hens to

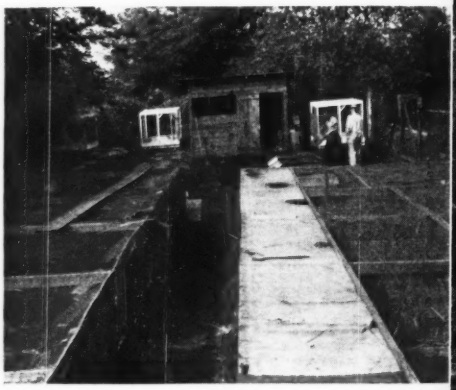
(Continued on Page 95)

The bag of deer shown at the right attest to the soundness of Mr. Hester's conservation policy. All the deer shown here were shot by Mr. Hester and members of the Jefferson County Sportsmen's Association on Mr. Hester's 9,000 acre preserve



Bantam hens are used to hatch out the marble-size eggs of the quail. The young ones shown at the right were mothered by one bantam. It keeps one person busy tending the young birds while they are still the size of a man's thumb but they soon are able to shift for themselves.

In the picture at the right, Sam Hester, the sportsman plumbing contractor, is shown with his son, Sam, Jr., and some of the Hesters' dogs. Not all of the dogs are kept at the home base of the Hesters; the bird dogs are kept at hunting headquarters, down in the country. Below are pictured some the breeding pens in Mr. Hester's quailry



America is now thoroughly awake to the seriousness of what lies ahead. There is a definite realization that we can lose this war if we do not take advantage of every one of our national resources.

The sources of virgin raw materials, -- ore mines, coal mines, mines from which alloying materials are produced -- are being drawn upon to their limit. But now the steel industry, in order to produce the necessary steel for tanks, guns, planes, ships, shells, bombs, machines and other vital war material, needs 6,000,000 tons of scrap in addition to the regularly available supply to achieve its goal.

The extra supply of iron and steel scrap is largely beyond the control of our industry -- it is in the hands of more than a hundred million Americans. In order that ultimate Victory may be assured, every individual must adopt an objective, fact-facing attitude and pledge himself to help in the mobilization of every pound of iron and steel scrap and make it available, through regular channels, in order that it can be converted into prime steel.

This Advertisement Sponsored By

THE YOUNGSTOWN SHEET AND TUBE COMPANY
YOUNGSTOWN, OHIO

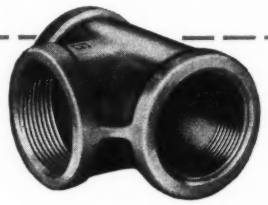
In Cooperation With The U.S. Government Salvage Campaign

The Plumbing Contractor's Journeyman ... *Works for Victory Too!*

THE MAN WITH THE PIPE WRENCH

When Bill goes home to the "MISSUS" and the kids ... *no war job grime comes along*

... because at the end of his shift, Bill can head for a shower with plenty of hot water and soap to get rid of the sweat and grime of the job ... and go home to the "Missus" and the kids clean and refreshed. That's mighty important to Bill and how well he does his job ... and it's a privilege he enjoys because The Man With The Pipe Wrench—whose indispensable skill is too often taken for granted—did his work well. Did it as skillfully ... efficiently ... and economically as only a man can who realizes and appreciates the importance of using good pipe fittings —without which there just wouldn't be any modern toilet and washroom facilities to help guys like Bill keep fit and alert for the job he's doing. So—next time production makes the headlines, let's give a little of the credit to the fellow who helps it along—*The Man With The Pipe Wrench.*



The Man With The Pipe Wrench **avoids time-wasting grief with Grabler Square "Gee" Fittings.**

THE GRABLER MANUFACTURING COMPANY
6565 BROADWAY **CLEVELAND, OHIO**

TRADE MARK REG.

GRABLER

SQUARE "GEE" PIPE FITTINGS

THE SQUARE "GEE" LINE INCLUDES: Malleable fittings • Unions • Rail fittings • Cast iron steam and drainage fittings • Patented fittings • Brass fittings and unions • Steel and brass nipples • Hangers • Floor and ceiling plates • Copper tube solder type fittings.

●

Warehouses: NEW YORK • CHICAGO • ATLANTA • PHILADELPHIA • LOS ANGELES • SAN FRANCISCO • DENVER • DALLAS • ST. LOUIS • PITTSBURGH

Questions From Readers

Water Filters

To the Editor:

A small hotel in our vicinity has asked us to install a water filter for them. What size would they need? The hotel has thirty rooms.

Mississippi P. F. W.

To the Reader:

No figures being available we will have to assume that a thirty room hotel would have about 100 people as guests and employees. At 100 gpd per person this would make a total of 10,000 gal. With 10 per cent of this total demand needed at the peak period there would have to be an hourly capacity of about 1,000 which is about 16½ gallons per minute. At 3 gpm. per sq. ft. of filter bed this would require a filter having an area of between 5 and 6 sq. ft. or a 30 to 36 in. cylinder. This capacity should be very carefully checked by the filter manufacturer as the above computations are necessarily in round figures.

• • •

Rusted Bolts

To the Editor:

Our firm has just taken on a repair job one part of which is a hot water boiler which blew up last winter. The threads on one of the bolts used to draw together the sections of the boiler were stripped and the bolt is rusted so badly that we can neither pull it by drawing on the nut on either end nor can we drift it by sledging. We have kept it soaked with penetrating oil and turpentine for three weeks but have not been able to loosen it; can you suggest any way in which we can accomplish this job?

Ohio H B. T.

To the Reader:

Inasmuch as we are not on the job and can not see exactly what the conditions are which confront you we may be making some suggestions here which do not fit the case; we hope that at least one of them, however, will be of aid to you.

The usual practice followed in loosening a bolt which has rusted in place is to keep the bolt saturated in kerosene until the oil has worked down through the rust and has separated the rust from the bolt. You say that you have tried using a mixture of turpentine and kerosene but we should like to suggest the use of kerosene alone. This could be applied by saturating a piece of waste with kerosene, wrapping it around the end of the bolt and allowing it to remain in place for about a week. Kerosene should be added periodically.

If the first method fails it may be possible to cut off the projecting end of the bolt and then to drill out the portion of the bolt remaining in the casting.

In the event this offers too many difficulties the last method of attack might be to weld on a thin coating of steel where the thread has been stripped; file this back to the original bolt size and re-thread the bolt.

• • •

Hum Eliminator

To the Editor:

I am enclosing a sketch (Fig. 1) of a device which has been of inestimable value to me in promoting customer satisfaction. In the hope that others of the industry may find it an equally helpful proposition I am making it available to you for publication as you see fit.

Since tank hum is so often present on oil burner installations, and since just as often it is practically impossible to track down and permanently eliminate it, a remedy which has proved effective in 60 out of 60 cases should prove interesting.

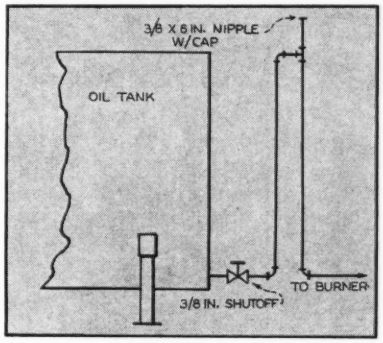


Fig. 1—This sketch shows the hum eliminator designed by W. F. H.

This idea is the net result of countless experiments made about five years ago when the success or failure of a new installation depended on the complete elimination of a very loud and penetrating tank hum. This was the idea that worked then and which has come through 59 times since.

Maine W. F. H.

To the Reader:

Examples of ingenious installation kinks such as this are welcomed by DOMESTIC ENGINEERING. If any of our readers have further ideas along this line, or ideas pertaining to any installation procedures in the plumbing, heating and air conditionng industry, a sketch and a brief letter describing them would be welcomed. Address your letters to The Editor, 1900 Prairie Ave., Chicago. Items published will be paid for at space rates.—Ed.

• • •

Can You Answer This?

The following question is presented for the readers of Domestic Engineering to solve. Answers received from readers will all be carefully considered and the most complete and accurate will be published in these columns next month. Five dollars will be paid for each answer published. Send your reply to The Editor, 1900 Prairie Ave., Chicago.

The question:

A 6 in. drainage line 100 ft long is laid at a grade of $\frac{1}{16}$ in. per foot; the capacity of a 6 in. pipe running full is approximately as follows:

Slope per Foot	Gallons per Minute
$\frac{1}{16}$ in.	183
$\frac{1}{8}$ in.	258
$\frac{1}{4}$ in.	364
1/3 in.	450

If, during the heaviest rains, this line must carry off water at the rate of 450 gpm, to what height must the water back up in the vertical leaders before this rate of flow will be reached.

• • •

Sweating Tanks

To the Editor:

What is the most practical way and the most successful way of eliminating excessive condensation on a closet tank or else of recovering the drip?

Pennsylvania R.P.H.

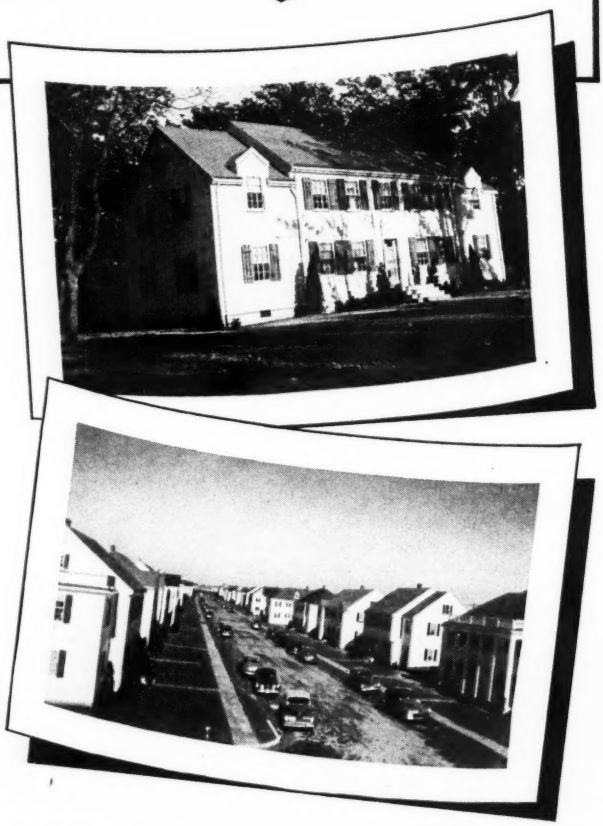
To the Reader:

We should first like to suggest that you get in touch with manufacturers of plastic cork coatings and inquire regarding their development of this material. Sweating toilet flush tanks have been reported to us from time to time, and mention has even been made of trouble experienced with flush valve type closets; this occurs most often when well water of low temperature is used in localities where the humidity is quite high.

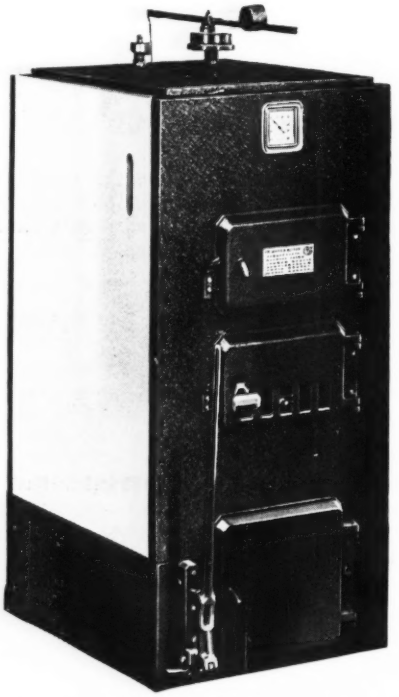
When the flush tank alone is giving trouble it can be cured by constructing a light lining of sheet metal to hold the water and then inserting a sheet of insulating material between the lining and the sides and bottom of the tank. The inner lining will give sufficient insulation to prevent the outside of the tank from reaching the dew point temperature.

U.S. WAR WORKERS GET THE BEST!

Kohler boilers are used at new Navy housing project to provide efficient steam heat and automatic hot water



• Typical four-family homes at THE ANCHORAGE, new Navy housing project at Newport, R. I. One Kohler boiler serves all four apartments in each of 150 separate houses—built by the Holt-Fairchild Co., Arlington, Mass. ➡



• Kohler's coal-burning "G" boiler, used in many big new housing projects. Engineered for up-to-the-minute efficiency. Delivers maximum heat with minimum waste. Gives long-time trouble-free service. (Steel jacket available only until present stocks are used.)

WHY do builders choose Kohler heating and plumbing equipment for low-cost emergency construction? Because they know that *Kohler quality* is always sound economy — costs no more, serves better, lasts longer.

On this same basis, Kohler equipment is being widely used today in war-worker homes, Army and Navy bases, hospitals and big industrial plants from coast to coast. The operating efficiency and economy of Kohler products, under varied service conditions, are *proved facts.*

Kohler makes a line of plumbing fixtures and fittings, boilers and radiators to meet present-day requirements. These are available for emergency repairs and replacements. . . . Kohler Co. *Founded 1873.* Kohler, Wisconsin.

KOHLER OF KOHLER

PLANNED PLUMBING AND HEATING—ELECTRIC PLANTS

AUTOMATIC HEAT and AIR CONDITIONING Section

IN THIS SECTION . . .

The Contractor's Answer to the Problem of Fuel Rationing

HEADQUARTERS FOR FUEL SAVINGS
Let us tell you how to:
• SAVE FUEL!
• MAKE YOUR PRESENT EQUIPMENT LAST!
Inspection & Consulting Service
Copyright 1942, DOMESTIC ENGINEERING CO.
SAVE
NOW—Automatic Heat at Lowest Cost with a Will-Burt Stoker
Only Will-Burt stands this

The contractor will find this article a valuable addition to the literature on heating of large buildings; on consumption of fuel; on sizing of systems

(*See Page 62*)

At top of page and at left: Two photos showing uses for the Domestic Engineering "Headquarters" displays, a few of which are still available to readers who request them for their own conservation campaign. Top photo—window display of Parker's, Inc., in Rockford, Ill.; below left—a contractor's display on an inside wall of his showroom

Make Fuel Produce Maximum Heat!

KEEP BOILERS 100% EFFICIENT

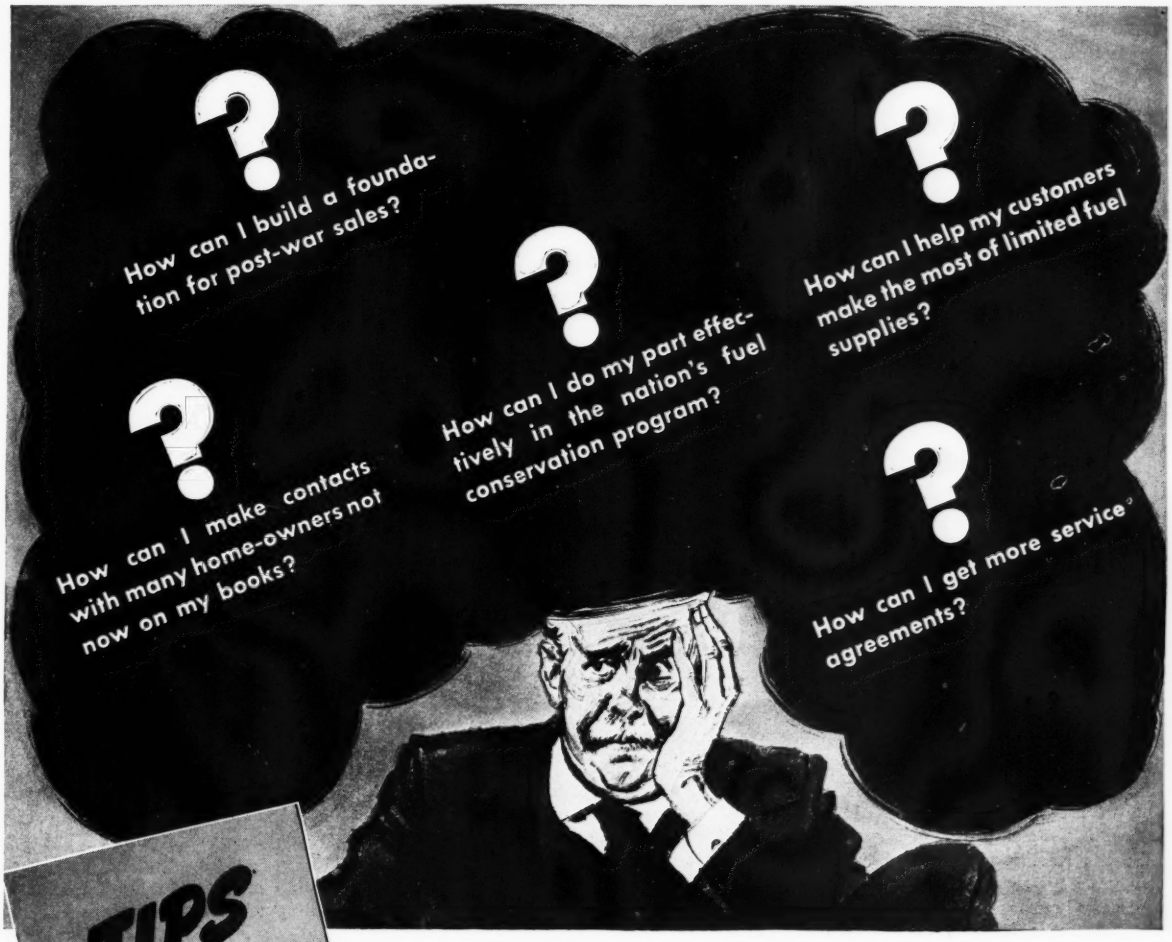
THESE "X" PRODUCTS ARE AVAILABLE *today* TO HELP YOU DO THIS PATRIOTIC JOB

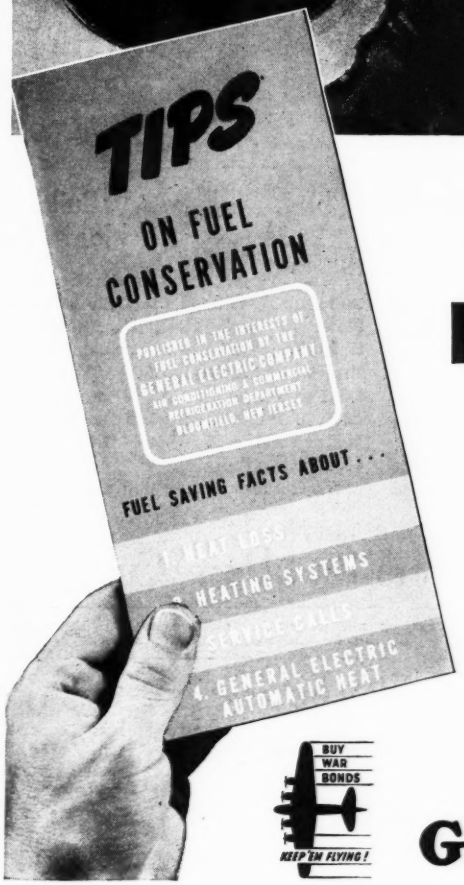
OTHER "X" SPECIALTIES

"X" PIPECUT OIL
Forms film on pipe threads. Keeps dies cool.

"X" PIPEJOIN
Light grey in color. Seals water, gas, steam joints and gaskets.

"X" LABORATORIES, INC., 25 WEST 45th ST., NEW YORK


How can I build a foundation for post-war sales?
How can I do my part effectively in the nation's fuel conservation program?
How can I help my customers make the most of limited fuel supplies?
How can I make contacts with many home-owners not now on my books?
How can I get more service agreements?


TIPS
ON FUEL CONSERVATION
PUBLISHED IN THE INTEREST OF FUEL CONSERVATION BY THE GENERAL ELECTRIC COMPANY AIR CONDITIONING & COMMERCIAL REFRIGERATION DEPARTMENT BLOOMFIELD, NEW JERSEY
FUEL SAVING FACTS ABOUT . . .
HEATING SYSTEMS
4. GENERAL ELECTRIC AUTOMATIC HEAT
BUY WAR BONDS
KEEP 'EM FLYING!

THE ANSWERS FOR G-E DEALERS

—just off the press!!

Copies of this timely booklet are now ready for distribution. It is designed to help you maintain happy relations with present customers and future prospects in your territory. It is a valuable guide for home-owners regardless of the type of furnace they own or the fuel they use. Write to your local G-E Heating Distributor, or direct to this division, for your sample copy.

"Tips on Fuel Conservation" is one example of how General Electric aims to protect its dealers and its goodwill with the public. Continuing national advertising in consumer "home" magazines is another. General Electric Co., Automatic Heating Division 2169, Bloomfield, New Jersey.

GENERAL ELECTRIC

Contractor's Answer to Problem of . . . FUEL in

The first job is to determine how much fuel should be used. Here is a new and ingenious way to do it

By H. T. Kucera

FUEL rationing is actually here—in the form of 50 per cent reduction in fuel oil deliveries in the East—and it is highly probable that "coupon" rationing will be introduced there and elsewhere as the heating season approaches.

This article is not presented as a basis for rationing—although it might serve as that—but as the heating contractor's answer to the owner or operator of a large or medium-sized building who is faced with fuel shortages.

Is the heating system operating as economically as it should? Is there room for improvement? How great an expenditure is justified to bring about economies? How much work needs to be done to bring the fuel consumption down to average? And probably most important: Is there a possibility of eliminating enough waste so that present temperatures and heating comforts can be maintained on a smaller amount of fuel, or will it be necessary to lower the temperatures in the building to compensate for a decreased fuel allotment?

Ten Factors Are Basic

These are questions every building operator faces today; and it is within the province of the heating contractor to answer these questions for him and to make such changes in the customer's heating system as appear to be necessary. The answers can be obtained through a thorough study of the conditions affecting the fuel consumption. There are no less than ten such conditions or factors that affect the heating requirements of a building. These are:

1. The "heat loss" of the building per degree of difference between inside and outside temperatures.
2. The temperature maintained within the building.
3. The number of hours per day it is necessary to maintain heat within the building.
4. The per cent of building occupancy and the distribution of such occupancy within the building.
5. The outdoor temperature as measured in degree days.
6. The ratio of the capacity of the heating system to the average seasonal heat requirement.
7. The Btu content of the fuel used.
8. The combustion efficiency.
9. The efficiency of the heating system.
10. The efficiency of the control system.

The effect of each of these factors is evaluated in this article. In order to determine the theoretical fuel requirements of a building it is necessary only to use the correct figures in the formulas and equations which follow.

Building Heat Loss

BUILDING heat loss calculations are based on the amount of building surface exposed to the outdoor temperature and on the type of construction involved. The simplest and most commonly used method of determining building heat loss is on the basis of the cubic content of the building; the method followed in this article for finding the size of the building is based on the measurements between the outer walls and between the roof and basement floor.

Some allowance should be made for "roof loss" of one, two and three story buildings as compared to the heat loss from taller buildings. In larger buildings the proportion of exposed surface to the cubic content of the building is always less than in smaller buildings and allowance should be made for this difference. Many of the larger buildings are irregularly shaped but these buildings are usually of better construction and with a smaller heat loss per unit of size.

The correction factors in Table I are for use in converting the cubic foot contents of buildings of various heights to a common basis in order to simplify calculations of the theoretical fuel requirements. To find the "standard basis" volume of a building simply multiply the actual volume in cubic feet by the correction factor indicated in Table I. For example: A two story, 60,000 cu ft building would have a "standard basis" volume of 60,000 × 1.05 or 63,000 cu ft.

While fuel consumption estimates are

Table I — Factors for Base Cubage

Conversion factors (CF) for converting actual cubic footage of buildings to a standard base cubage depending on the numbers of stories

	4 or more stories	3 Story	2 Story	1 Story
Buildings up to 50,000 cu ft	1.00	1.04	1.10	1.16
51,000 to 100,000 cu ft	.96	1.00	1.05	1.11
101,000 to 250,00 cut ft	.91	.95	1.00	1.05
251,000 to 500,000 cu ft	.87	.90	.96	1.01
501,000 to 750,000 cu ft	.84	.87	.92	.98
751,000 to 1,000,000 cu ft	.82	.85	.90	.95
1,001,000 to 2,000,000 cu ft	.79	.82	.87	.92
2,000,000 and over	.77	.80	.85	.89

RATIONING

Medium and Large Buildings

Fuel Conservation Feature

Author of This Article

H. T. Kucera

sometimes made on the basis of installed radiation, the factors involved in determining the amount of radiation, the temperature used as the basis for such calculations and the accuracy of the calculations themselves must all be considered in determining the dependability of any estimate of fuel consumption which is based upon amount of installed radiation.

It is usually far easier to calculate the cubic contents of the building, and this method will be employed in this article. It might be suggested, however, that a quick rule-of-thumb conversion may be made by considering one square foot of installed radiation equal to 75 cu ft of standard basis volume of a building in any section of the country where a —10 to 70 F design temperature is used.

Conversion to Radiation

In other words, the installed radiation multiplied by 75 may be substituted in the fuel consumption formulas for the "standard basis" volume of the building. No additional correction need be made for roof loss or size of building. In sections where design temperatures of 0 to 70 F are used the factor should be increased to 84; where —20 to 70 F is used as a basis the factor should be reduced to 66.

TABLE II, column 1 shows the average seasonal degree days for a number of the larger cities in the United States as obtained from the U. S. Weather Bureau. The degree day is the measure of the *coldness* of the region and is considered as the difference between 65 F and the average mean temperature for that day; one degree day exists for each degree Fahrenheit that the mean temperature drops below 65 F. The heating season, Table II, column 2, starts on the first fall day that the average temperature for the day (as shown by readings taken over a period of years) drops below 65 degrees and it continues until the average temperature again rises to 65 F.

The average seasonal temperature, Table II, column 3, is the average temperature of the average day during the heating season and can be arrived at by deducting from 65 F the result obtained by dividing the average seasonal degree days by the number of days in the heating season. The average temperature differential, Table II, column 4, is the difference between 70 F and the average seasonal temperature; that is, the temperature difference through which the building must be heated on the average winter day to maintain the building temperature at 70 F.

Degree Day Factor

Should the temperature in the building be maintained at 71 F throughout the heating season, the heating load and consequently the amount of fuel required will be increased an amount equal to the reciprocal of the average temperature difference. This will be approximately 1/26 or 3.82 per cent in New York City; 1/30 or 3.33 per cent in Chicago and 1/20 or 5.03 per cent in Atlanta. Thus, for each degree difference in the temperature maintained in the building a correction equal to the figure shown in Table II, column 6, must be made in determining fuel re-

Table II — Factors for Fuel Requirements

Correction Factors to Be Used in the Fuel Requirement Formulas for Variations of Maintained Temperature, of Hours of Heating and of Temperature Area Conditions in Fourteen Principal Cities. (70° Maintained Temperature Base.)

City	Average Seasonal Degree Days	Length of Heating Season in Days	Average Seasonal Temperature	Average Temperature Differential	Load Variance per Degree of Maintained Temperature in %.	Correction Factor Per Degree of Maintained Temperature Variance from 70° Base (See article for TF)	Savings Effected by Reducing Building Temp. 10° F. in %.	Correction Factor for Each Hour of Reduced Temperature. (See article for HF from 12 Hour Base)	Correction Factor Due to Temperature Area. (TAF)
Baltimore	4525	232	45.5	24.5	4.09	.0409	40.9	.0171	1.113
Atlanta	2984	200	50.1	19.9	5.03	.0503	50.3	.0210	1.227
Chicago	6447	257	40.0	30.0	3.33	.0333	33.3	.0139	0.975
Boston	6084	273	42.7	27.3	3.67	.0367	36.7	.0153	1.042
Detroit	6458	268	40.9	29.1	3.44	.0344	34.4	.0143	0.998
Minneapolis	7902	275	36.2	33.8	2.96	.0296	29.6	.0123	0.880
Atlantic City	5173	259	45.1	24.9	4.02	.0402	40.2	.0167	1.103
New York City	5290	250	43.8	26.2	3.82	.0382	38.2	.0159	1.070
Cleveland	6150	267	41.9	28.1	3.56	.0356	35.6	.0148	1.023
Portland	4442	304	50.4	19.6	5.11	.0511	51.1	.0213	1.235
Philadelphia	4792	238	44.8	25.2	3.97	.0397	39.7	.0165	1.095
Pittsburgh	5499	244	42.4	27.6	3.63	.0363	36.3	.0147	1.035
Concord	7287	302	40.8	29.2	3.43	.0343	34.3	.0143	0.995
Spokane	6312	298	43.8	26.2	3.82	.0382	38.2	.0159	1.070

How to Figure Fuel Requirements for Conservation

This method of figuring
The author's explanation
The results you obtain

quirements. In actual practice the variance will usually be found to be greater than the theoretical variance shown because of the tendency of building occupants to open windows as building temperatures rise.

Influence of Controls

FROM the above figures it will be noted that a building in New York City which maintains an average temperature of 75 degrees will require 5x3.82 or 19.1 per cent more fuel than would the same building if it maintained an average temperature of 70 F. This necessity for maintaining temperatures near the 70 F mark, if utmost economy is to be realized, enables "outside" type controls to show a high rate of fuel savings. Operating as they do from outside temperature, they anticipate a change in inside temperature before it occurs and regulate the rate of firing accordingly. The elimination of "lag" which causes overshooting or undershooting of the pre-determined building temperature permits these controls to be set so as to maintain lower temperatures than would otherwise be possible. In other words, they never let the building cool down to a point where discomfort will result before they start the heating system.

THE fuel consumption of a building will be decreased if the temperature within the building is permitted to drop whenever the building is not actively occupied. As the heat loss of the building is a direct factor of the difference between inside and outside temperatures, the actual fuel savings effected will be a direct factor of the *length of time* the temperature is dropped and the *number of degrees* which it is dropped.

If an *average* drop of ten degrees is to be realized it will be necessary to drop the temperature *more* than ten degrees on the colder days. This is made necessary because, on milder days, the building temperature will not drop ten degrees inasmuch as there is not a great enough differential between inside and outside temperatures.

During extremely cold weather, building temperatures which have been allowed to drop excessively during the night cannot be raised to the desired daytime level because of lack of sufficient pick-up capacity. This, plus the fact that building temperatures drop slowly and rise slowly, makes it necessary that any calculations of possible fuel savings resulting from night shutdown be based on a maximum average temperature drop of ten degrees, although a fifteen degree drop is advocated and practiced whenever the weather permits.

The fuel savings produced by dropping the building temperatures an average of 10 degrees is ten times the factor indicated in column 6 of Table II. The per cent reduction in fuel requirements accomplished by maintaining an average temperature of 60 F instead of 70 F in the building is shown in column 7 of Table II. The saving that would be brought about for each hour this lowered temperature was maintained is 1/24 of the figures shown in column 7 of Table II. The savings to be anticipated by reducing building temperatures 10 degrees throughout the heating season are indicated in column 7 of the same table. The correction factor (one twenty-fourth of the figures shown in column 7 expressed in decimals) for each hour the temperature is permitted to remain 10 degrees lower than normal, is given in column 9. In the fuel allotment formulas, shown later in this article the constant used is based on 12 hours of maintained temperature; therefore, whenever shorter or longer hours of heating are involved, a correction must be made.

How Warm Shall It Be?

For example, a school building in New York City which needs heat from 8:30 in the morning until 4:30 in the afternoon requires heat only eight hours a day; this is four hours less than the base of twelve used in the formulas and therefore saves four hours of maintained temperature over that used in in the base constant. The correction allowance to be made is 4x.0159 or .0636 and inasmuch as less fuel is required, the factor (HF) in the formulas should read .9364. Should heating be required for four hours more than the base of 12, or 16 hours, the factor would read 1.0636.

Extent of Vacancies

THE extent of the vacancy of a building, as well as the distribution of vacancies throughout the building, affects the fuel consumption. If offices and apartments at scattered points are unoccupied, shutting off the radiators in such space will effect a saving of approximately half the fuel normally required to heat the space. Heat infiltration from the heated parts of the building keeps this saving from rising to a greater percentage.

Where complete floors or large areas of the building may remain unoccupied, and such space is isolated so that heat cannot easily be transferred from adjoining heated space, the proportion of savings may be larger. However, even here the precautions usually necessary to prevent freeze-ups of piping in such unheated sections call for an appreciable heat input. In order to save even 50 per cent of the normal heat input in an unoccupied space, the average temperature in that space must be maintained at a temperature of 70 F less half of the average temperature differential (column 4, Table II). This would be an average of 55 F in Chicago. It has therefore been considered good practice to make an allowance of ½ of 1 per cent in fuel allotment for each 1 per cent variation in building occupancy. This factor should be used in the fuel allotment formulas which follow. For each 1 per cent of building vacancy deduct ½ of 1 per cent or five one-thousandths from the factor wherein a hundred per cent occupancy calls for a factor of unity (1). In other words, if the unoccupied portion of the building represents 20 per cent of the total volume of the building, the factor VF should be .90.

fuel requirements will give you some ideas on sizing heating systems.

of the method will give you valuable facts on heating plant operation.

with the method will enable you to locate and prevent fuel wastage

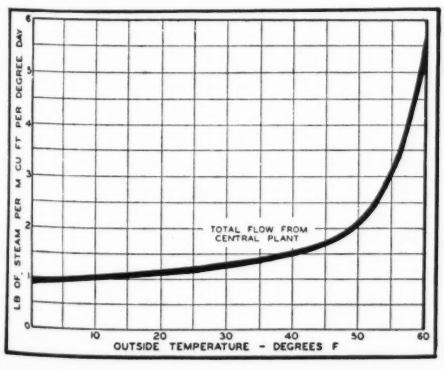
THE colder it is outdoors, the faster heat will be lost from the building. To measure fuel requirements of a building, some measure of this "coldness" must be used. The degree day is the standard measure of this coldness.

Experience in building heating, coupled with a study of outdoor temperature fluctuations, indicates that during the mildest heating months the outdoor temperature fluctuates an average of some 16 degrees daily. That is, on a day having an average temperature of 65 degrees the temperature will change from about 57 F at night to 73 F during the day. In such a case the heat stored up in the building during the day is lost very slowly at night; therefore, no heat is actually needed to keep the building at a comfortable 70 during the hours it is occupied. If the average temperature drops to 64 deg. however, one unit of heating is required to keep the building at 70 F while occupied. This unit is the degree day.

Temperature Fluctuations

The U. S. Weather Bureau now publishes the degree days in monthly and annual reports for all the larger cities in the country. These are available, usually for the asking. Many cities are not listed in Table II but records of these cities may be obtained from the weather bureau and the factors shown in Table II compiled therefrom.

The drawing below shows the relationship between the outside temperature in degrees F and the number of pounds of steam flowing from a central plant. This chart was part of a paper "Steam Consumption in College Buildings" presented before the National District Heating Assn. by R. Y. Sigworth, Supervisor of Utilities, Pennsylvania State College



IT IS common knowledge that the colder the outdoor temperature the closer the heating plant operates to its capacity and the more efficiently it operates. This is brought about partly by more efficient combustion with lower standby losses, lower distribution losses due to sustained pressure, and from the control angle because of the greater proportional operation of the plant.

By reference to Table II it will be noted that the average degree days for Baltimore and Portland are approximately equal, yet heating is required in Portland 304 days of the year and in Baltimore only 232 days of the year. It is therefore to be expected that an installation in Portland will require more fuel per degree day than will an identical installation in Baltimore. In Portland the lowest recorded temperature is —2 F and in Baltimore it is —7 F. The normal basis for designing the heating system would then be plus 10 F to 70 F in both cases.

Areas with milder climates will, occasionally, have an extremely cold spell and it is for this reason that many buildings in these areas have heating plants with capacities equal to those found in colder areas. The heating systems in the milder climates, however, usually operate at a lower proportional rate than do those in colder zones. It has been found, in a recent study, that the rate of flow of steam from central steam generating plants varies from 1.4 units per degree day at 36 F to 2.15 units at 50 F. While these figures do not take into account the combustion factors that may be responsible for an even greater divergence, they do represent the best data available and have been used as the basis of the divergency factors suggested in column 9 of Table II.

Seasonal Average

A curve prepared in connection with the above mentioned study, shows almost a straight line relationship from 36 deg to 46 deg outside temperature, which covers the average seasonal temperatures. As the variation between these two temperatures is .35 units, which represents exactly 25 per cent of the base rate of 1.4 at 36 F, we can say that the rate of fuel consumption increases 2½ per cent with each 1 deg change in average seasonal temperature. As the average temperature for this range is 41 F we can, in our calculations, use this as a base and correct for variations from this base average seasonal temperature as per the figures shown in column 9, Table II, at the rate of 2½ per cent of load variation per degree of temperature variation.

INASMUCH as the several grades of fuel oil used vary in heat content as much as 10 per cent, and the various grades of coal may have anywhere from 10,000 to 15,000 Btu per pound, any fuel consumption analysis must necessarily take this factor into consideration. For use in determining the requirements for heating of buildings, we indicate in Table III the calorific value of fuel oils and the fuel factor of each particular fuel oil. In Table IV the calorific value of coal and the fuel factor of the coal is given. In order to simplify the use of the fuels' Btu content in our fuel requirement formulas, we will indicate the fuel factor in Tables III and IV as the reciprocal of the Btu content of the fuel. This permits constant multiplying in the formulas instead of dividing by the Btu content of the fuel used.

Heat in the Fuel

Table III — Fuel Oil

Approximate Gravity and Calorific Value of Standard Grades of Fuel Oil and the Fuel Factor (FF) for Arriving at ing at Amount of Oil (Gallons)

Commercial No.	Gravity Range Baume'	Calorific Value Btu Per Gallon	Fuel Factor
1	38-40	136,000	.000,007,36
2	34-36	138,500	.000,007,23
3	28-32	141,000	.000,007,10
5	18-22	148,500	.000,006,74
6	14-16	152,000	.000,006,58

AUTOMATIC HEAT and AIR CONDITIONING Section

Table V — Combustion Efficiencies; Coal

COMBUSTION EFFICIENCY (Shown in Per cent) and CORRECTION FACTORS OF COAL FIRED HEATING PLANTS

Per Cent CO_2 (at right, read across)		5	6	7	8	9	10	11	12
Per Cent CO_2 (at right, read across)									
300	Comb. Eff.	76.0	80.0	82.5	85.0	86.5	87.5	88.5	89.5
	Cor. Factor	1.32	1.25	1.21	1.18	1.16	1.14	1.13	1.12
350	Comb. Eff.	71.0	75.0	79.0	81.5	83.5	85.0	86.5	87.5
	Cor. Factor	1.41	1.33	1.27	1.23	1.20	1.18	1.16	1.14
400	Comb. Eff.	65.0	70.5	75.0	77.5	80.0	82.0	83.5	85.0
	Cor. Factor	1.54	1.42	1.33	1.29	1.25	1.22	1.20	1.17
425	Comb. Eff.	62.5	68.5	73.0	76.5	79.0	81.0	82.5	84.0
	Cor. Factor	1.60	1.46	1.37	1.31	1.27	1.23	1.21	1.19
450	Comb. Eff.	60.5	66.5	71.5	75.0	77.5	79.5	81.5	83.0
	Cor. Factor	1.65	1.51	1.40	1.33	1.29	1.26	1.23	1.20
475	Comb. Eff.	58.0	64.5	69.5	73.5	76.5	78.5	80.5	82.0
	Cor. Factor	1.73	1.55	1.44	1.36	1.31	1.28	1.24	1.22
500	Comb. Eff.	55.0	62.0	68.0	71.5	75.0	77.5	79.0	81.0
	Cor. Factor	1.82	1.63	1.47	1.40	1.33	1.29	1.27	1.24
525	Comb. Eff.	52.5	60.0	66.0	70.0	73.5	76.0	78.0	79.5
	Cor. Factor	1.91	1.67	1.52	1.43	1.36	1.32	1.28	1.26
550	Comb. Eff.	50.0	57.5	64.0	68.0	72.0	74.5	77.0	78.5
	Cor. Factor	2.00	1.74	1.56	1.47	1.39	1.34	1.30	1.27
575	Comb. Eff.	47.5	55.5	62.0	66.5	70.5	73.5	75.5	77.5
	Cor. Factor	2.11	1.80	1.62	1.50	1.42	1.36	1.32	1.29
600	Comb. Eff.	45.0	53.5	60.5	65.0	68.5	72.0	74.5	76.5
	Cor. Factor	2.23	1.87	1.65	1.54	1.46	1.39	1.34	1.31
650	Comb. Eff.	40.0	49.0	56.5	61.5	66.0	69.0	72.0	74.5
	Cor. Factor	2.50	2.04	1.87	1.63	1.52	1.45	1.39	1.34
700	Comb. Eff.	35.0	45.0	53.0	58.5	63.0	66.5	69.5	72.0
	Cor. Factor	2.86	2.22	1.89	1.71	1.59	1.50	1.44	1.39
750	Comb. Eff.	30.5	41.0	49.5	55.0	60.0	64.0	67.0	70.0
	Cor. Factor	3.28	2.44	2.02	1.82	1.67	1.56	1.49	1.43
800	Comb. Eff.	25.5	36.5	46.0	52.0	57.0	61.0	65.0	67.5
	Cor. Factor	3.92	2.74	2.18	1.92	1.76	1.64	1.54	1.48

Table IV — Coal

Calorific Value of Coal and the Fuel Factor (FF for arriving at Amount of Coal (Pounds)

Calorific Value in Btu per pound	Fuel Factor
10,000	.0001
10,500	.000095
11,000	.000091
11,500	.000087
12,000	.000083
12,500	.00008
13,000	.000077
13,500	.000074
14,000	.000071
14,500	.000069
15,000	.000067

Where the analysis being made is based on the steam used (this would be the case in a building being heated with purchased steam) the calorific value of the steam must be considered and substituted for the fuel factor in the formulas. As a rule, 970 Btu may be considered as the number of thermal units emitted by a pound of steam at atmospheric pressure. The fuel factor (FF) or, in this case the steam factor, would be the reciprocal of 970 or .00103. The use of this factor will give the pounds of steam used per degree day.

Heat Value of Steam

COMBUSTION efficiency plays an important part in determining the fuel requirements of a building. While efficiencies of as much as 80 per cent are not uncommon in the larger installations, particularly on short hour runs, a considerably lower overall efficiency usually prevails even in the multi-occupancy building.

The use of combustion controls such as barometric draft controls will bring about combustion efficiencies. A building requiring steam for process work or requiring the continuous generation of steam for any reason will usually operate at a higher rate of efficiency than will one operating intermittently. A system operated at regular intervals with a substantially long operation in each period will operate more efficiently than will one that is operated spasmodically.

Combustion Efficiency

Where figures on the average CO_2 content and on the average flue gas temperature are available the combustion efficiency may be obtained from Table V for coal-fired heating plants, and from Table VI for oil-fired plants. These values are for normal operating periods. The figure for the combustion efficiency is obtained by following the column for the CO_2 content down until it intercepts the correct flue gas temperature column running horizontally. For example, 10 per cent CO_2 content at a flue gas temperature of 525 F shows a combustion efficiency of 76 per cent in a coal-fired plant and 78 per cent in an oil-fired plant.

To obtain the combustion efficiency factor for use in the formulas it is necessary to obtain the reciprocal of the combustion efficiency figure. This correction factor is shown in Tables V and VI directly under the combustion efficiency. Therefore, the correction factor for the combustion efficiency of a coal-fired plant operating on 10 per cent CO_2 and 525 deg flue gas temperature would be .0132, and for the same conditions on an oil-fired job the correction factor would be .0128.

Where specific information regarding the CO_2 content and the flue gas temperature are not available, an estimate of such conditions must be made. It should be remembered that the combustion efficiency must always be based on a general overall efficiency rather than on the efficiency in any test run.

Barometric Controls

IT IS an engineering truth that the more quickly and easily steam can be circulated throughout a building the more evenly the building will be heated and the less steam will be used. Both the vacuum and vapor types of heating systems are highly successful and, due to the fact that recent reports show that these systems are practically identical in their operating characteristics, we will use the same correction factor for both systems.

Three other heating systems which may be placed in one category are the single pipe gravity, the so-called single pipe vacuum system and the air line system. A third classification is formed by the "open" two pipe system and the two pipe gravity system, which is

Types of Systems

Influences of such controls, types of vacancies, hours of areas, temperatures efficiences are cor-

elements as fuels, systems, extent of operation, climatic maintained & plant related and studied

found in a diversity of forms. Where other types of systems are found they must be separately classified and assigned an equitable efficiency factor. Although it is true that orificing favorably affects the regulation of steam distribution in a building no consideration is given this factor in these calculations.

In the following Table VII are given the suggested correction factors to be used in the fuel consumption formulas for various systems. These factors have been formulated from experience gained in many hundreds of installations.

Table VII — Systems

Table VII—Correction Factor for Various Types of Heating Systems (HSF)	
Type of System	Correction Factor
Condensational or Induced Vacuum	1.00
Two Pipe Gravity	1.05
One Pipe Steam	1.10

Methods of Regulation

THE method of regulating the heating plant plays an important part in determining the fuel requirements of the building. Thermostatic control of the dampers on hand-fired anthracite installations, for example, has met with some success.

For a number of years stokers and oil burners installed in multiple occupancy buildings were equipped only with pressure controls. The primary reason for this was the fact that it was impossible to find any particular room in a large building from which the stoker or burner could be controlled. In the last few years, however, rapid strides have been made in the development of automatic thermostatic "outside" controls.

While it is true that stokers increase combustion efficiency appreciably over hand-fired installations, experience has indicated that in a great many cases more coal was consumed by stoker operation than had formerly been used when the heating unit was hand-fired. The reason for this is unquestionably the fact that lack of constant attention allowed the hand-fired installation to die down for periods, whereas lack of attention to the stoker-fired installation caused a continuous pressure to be maintained so long as there was coal in the hopper. Another factor which helps to explain the situation is that engineers had the erroneous impression that by lowering the setting of the pressurestat on a stoker or oil-fired installation they were reducing the rate of heating. By such operation they succeeded only in overheating the sections near the boiler and in underheating those sections of the system most distant from the boiler.

Common Mistake

It is extremely difficult to arrive at any clearly defined "control" factors because of the extreme variation of conditions found. The suggested factors in Table VIII will, nevertheless, be found conservative and can be substantiated by records of thousands of installations. It is suggested that the factors indicated simply be used as a guide and that adjustments be made as indicated by conditions in each system.

Table VIII — Regulation

Correction Factor for Method of Heat Regulation (CTF)	
Spasmodic Attention	1.12
Careful Manual Attention	1.00
Adequate Outside Type Thermostatic Control	0.84

EXPERIENCE gained in the study of thousands of buildings indicates that an average multiple occupancy building, about three stories high, with somewhere between 50,000 and 100,000 cubic feet of volume, maintaining a temperature of 70 F twelve hours a day, having a vacuum system of heating, consumes 8/10 lb of steam per M cu ft of volume per degree day.

Average Consumption

To convert pounds of steam into Btu's for use in our formulas we must multiply the number of pounds of steam by 970 which is the number of Btu emitted by the condensation of one pound of steam. Therefore, 0.8×970 equals 776

AUTOMATIC HEAT and AIR CONDITIONING Section

Table VI—Combustion Efficiencies; Oil

COMBUSTION EFFICIENCY (Shown in Percent) and CORRECTION FACTORS OF OIL FIRED HEATING PLANTS

Per Cent CO_2 (at right, read across)

Flue Gas Temperature (extreme left, read down)		5	6	7	8	9	10	11	12
300	Comb. Eff.	80.5	82.0	84.5	85.5	86.0	87.0	87.5	88.0
	Cor. Factor	1.24	1.22	1.18	1.17	1.16	1.15	1.14	1.14
350	Comb. Eff.	77.0	79.5	81.5	83.0	84.5	85.0	86.0	86.5
	Cor. Factor	1.30	1.26	1.23	1.21	1.18	1.18	1.16	1.16
400	Comb. Eff.	73.0	75.5	79.0	81.0	81.5	83.0	84.0	84.5
	Cor. Factor	1.37	1.32	1.27	1.24	1.23	1.20	1.19	1.18
425	Comb. Eff.	71.5	75.0	77.5	79.5	81.0	82.0	83.5	84.5
	Cor. Factor	1.40	1.33	1.29	1.26	1.24	1.22	1.20	1.19
450	Comb. Eff.	70.0	73.5	75.5	77.5	79.5	81.0	82.0	83.5
	Cor. Factor	1.43	1.36	1.32	1.29	1.26	1.23	1.22	1.20
475	Comb. Eff.	68.0	72.5	75.0	77.0	79.0	80.5	81.5	83.0
	Cor. Factor	1.47	1.38	1.34	1.30	1.27	1.24	1.23	1.21
500	Comb. Eff.	66.0	70.0	73.5	75.5	77.5	79.5	80.5	81.5
	Cor. Factor	1.51	1.43	1.36	1.32	1.29	1.26	1.24	1.22
525	Comb. Eff.	64.5	68.5	72.5	74.0	76.5	78.0	79.5	81.0
	Cor. Factor	1.55	1.46	1.38	1.35	1.31	1.28	1.26	1.24
550	Comb. Eff.	63.0	67.0	71.0	73.5	75.0	77.0	79.0	79.5
	Cor. Factor	1.58	1.49	1.41	1.36	1.33	1.30	1.27	1.26
575	Comb. Eff.	62.0	66.0	69.5	72.5	74.0	76.5	78.0	79.0
	Cor. Factor	1.61	1.52	1.44	1.38	1.35	1.31	1.28	1.27
600	Comb. Eff.	60.5	64.0	68.0	71.0	73.0	75.0	77.0	78.0
	Cor. Factor	1.65	1.56	1.47	1.41	1.37	1.33	1.30	1 28
650	Comb. Eff.	56.0	61.5	65.5	68.5	71.5	73.5	75.0	77.0
	Cor. Factor	1.78	1.63	1.53	1.46	1.40	1.36	1.33	1.30
700	Comb. Eff.	52.5	58.0	63.0	66.0	68.5	71.5	73.0	74.0
	Cor. Factor	1.90	1.72	1.59	1.52	1.46	1.40	1.37	1.35
750	Comb. Eff.	48.5	55.5	59.0	63.5	67.5	69.5	71.5	73.0
	Cor. Factor	2.06	1.80	1.69	1.58	1.48	1.44	1.40	1.37
800	Comb. Eff.	45.0	52.5	57.0	62.0	66.5	67.5	69.5	71.5
	Cor. Factor	2.22	1.91	1.76	1.61	1.51	1.48	1.44	1.40

The ten most important factors in fuel consumption are evaluated and combined here in a formula for determining the theoretical fuel requirements of large and medium sized buildings. The formula, compared with actual records, reveals degree of heating performance, and a check-back on the individual factors shows how performance can be improved

Btu required per thousand cubic feet of volume or 0.776 Btu per cu ft.

The formula for obtaining the fuel requirements of any building can then be expressed as follows:

$$\text{Fuel} = \frac{\text{Constant X Volume X Corrections for Variations from Standard Conditions}}{\text{Effective Btu Value of the Fuel}}$$

However, by using the reciprocal of the effective Btu value of the fuel in our formulas we do away with the necessity for using division in our calculations. The formula would then read:

$$F = 0.776 \times C \times CF \times HF \times VF \times TF \times TAF \times HSF \times FF \times CEF \times CTF$$

In the above formula

F = theoretical fuel (or steam) requirements of the building per degree day.

C = actual cubic content of the building.

CF = cubic contents correction factor (Table I)

HF = correction factor for correcting for the number of hours of maintained temperature as the actual hours vary from the base period of 12 hours. (Table II)

VF = correction factor for building vacancy. (Based on ½ of 1 per cent deduction for each 1 per cent of vacancy)

TF = correction factor for the variance of maintained building temperature from the base of 70 . (See body of article, Page 63, column 3)

TAF = correction factor for temperature area. (Table II)

HSF = correction factor for heating system efficiency. (Table VII)

FF = coal factor (Table IV), fuel oil factor (Table III), or steam factor (.00103)

CEF = combustion efficiency factor (coal, Table V; fuel oil, Table VI, or for steam this factor is unity (1).

CTF = correction factor for the method of control used (Table VIII).

Example

How It Is Figured

As an example, let us assume a seven story office building in New York City which has a cubic content of 800,000 cu ft; it is 90 per cent occupied, requires a temperature of 71 F from 8 a.m. until 10 p.m. because of defense work. The heating system is a two-pipe gravity system and the oil burners, using No. 6 oil, are used for space heating only. The oil burner is operated by a full automatic outside type thermostat and the flue gas analysis is 7 per cent CO_2 and the flue gas temperature is 600 F.

With these figures the following substitutions would be made in the fuel oil allotment formula:

$$F = 0.776 \times 800{,}000 \times 0.82 \times 1.0318 \times 0.95 \times 1.0382 \times 1.07 \times 1.05 \times 000{,}006{,}580 \times 1.47 \times 0.84 = 4.72 \text{ gallons of fuel oil}$$

This means that 4.72 gal. are required, theoretically, by the building for each degree day for space heating alone. In the average season of 5,290 degree days the building would require 25,000 gallons.

This same building firing coal of 11,500 Btu heat content and with the same flue gas analysis and all other factors remaining the same would use:

$$F = 0.776 \times 500{,}000 \times 0.52 \times 1.0318 \times 0.95 \times 1.0382 \times 1.07 \times 1.05 \times 0.000{,}087 \times 1.65 \times 0.84 = 69.3 \text{ lb of coal}$$

Thus, 69.3 lb of coal are required for each degree day to take care of space heating needs only. In the average season of 5,290 degree days the building would require 366,000 lb of coal or 183 tons.

The same building heating with purchased steam would use:

$$F = 0.776 \times 800{,}000 \times 0.82 \times 1.0318 \times 0.95 \times 1.0382 \times 1.07 \times 1.05 \times 0.00103 \times 1.0 \times 0.84 = 503 \text{ lb of steam.}$$

Inasmuch as this amount of steam is required for each degree day we find that in an average season of 5,290 degree days the building's theoretical needs would amount to 2,660,000 lb of steam.

No attempt has been made herein to include the fuel requirements for the heating of domestic water or for special or process loads. Many buildings heat their domestic water and provide other loads entirely separate from their source of building heat. Where separate services are not provided the fuel requirement for heating domestic water usually can be obtained from the records of fuel consumption during the summer months when only domestic water is heated.

Summary

An analysis of the theoretical fuel requirements of a building may serve many purposes. It may aid in estimating the fuel consumption of a projected building or it may serve as a guide in comparing consumptions of buildings having different operating conditions. Undoubtedly, its most useful function at this time is to enable the heating contractor to determine what steps may be necessary to reduce fuel consumption.

What's to Be Gained

When any of the ten factors discussed in the foregoing are found to result in substantial fuel wastage, steps to correct them may be taken in accordance with other articles in this and preceding issues —Ed.

Between Ourselves . . .

Headquarters Sign

(Continued from Page 30)

To the Editor:

I received the "Headquarters for Fuel Savings" display and immediately tacked it to my bulletin board, so that the first thing you see upon entering my office is this banner.

A. Bachman, Secretary
Heating, Piping & Air Conditioning Contractors Cincinnati Association

• • •

Local Program

To the Editor:

In regard to our local work in fuel conservation, will say that we have no definite program, but certain of our members who are engaged in the smaller class of work are doing considerable in the way of conversion from oil to coal; that is, they are trying to get the customers to do so and have been somewhat successful to date. If you are giving publicity to this matter in your publication, I think it would be well to emphasize the fact that conversion Order L-79 has been so amended to make available in the Eastern states all grates and parts necessary for this conversion work. There seems to be quite considerable confusion, not only in the minds of the public, but also on the part of smaller dealers on this point.

G. H. Chasman, Secretary
Heating and Piping Contractors District of Columbia, Assn., Inc.
Washington, D. C.

• • •

The Certificate

To the Editor:

Thanks very much for your Certificate of Patriotic Action just received. It is already framed and hung in our office.

I am sure this is going to raise the spirit of patriotism among our organizations, as well as our customers. Your tabulation of actions touches the heart of all good Americans in protecting our soil and liberty on this side of the world.

Compania Cubana De Efectos Sanitarios, S. A.
Habana, Cuba.

● A few certificates are still available. Write to the Editor.—Ed.

From Alaska

To the Editor:

If ever the trade got its money's worth out of a magazine, DOMESTIC ENGINEERING is delivering the goods now. The WPB has no office in the Territory and we get our most pertinent information from your magazine. Only wish it were not delayed so long in the mail.

We would like to have you send us: one copy "200 Questions and Answers," one copy "Flow Chart" No. 3; one "Emergency Plumbing Standards for Defense Housing."

So far there has been no defense housing in the Territory except at Seward, which suffered a heavy fire. However, there may be a defense housing project started at Sitka later in the year, and we should like to have this informaton on hand. We enclose 25c in stamps for the Flow Chart.

Many thanks for your splendid offer and we are glad to take advantage of it.

Rice & Ahlers Co.
Juneau, Alaska.

Physical Exam
FOR UNBORN FITTINGS
● To an experienced foundry man, this bit of cast iron is both X-ray and stethoscope rolled into one. It's the result of a cupalo chill test, and by the length of the crack or "chill," the quality of the molten iron can be accurately determined.
● At ½ hour intervals, K foundry experts make this "physical exam" . . . one of surprisingly many tests in the manufacture of K fittings. Such emphasis on close control has but one result . . . strength, uniformity, accuracy, and smoothness.
KUHNS BROS. CO.
DAYTON, OHIO
YOU CAN PUT YOUR TRUST IN NO FINER CAST IRON FITTINGS.
STANDARD AND SPECIAL CAST IRON FITTINGS TO 24"
STANDARD FLANGE ELBOW
STANDARD FLANGE TEE
COMPANION FLANGE
K INSPECTED FITTINGS

Manufacturers & Wholesalers

OBI Meets

The Emergency Committee for the Oil Burner Industry will close its office at the end of August and Robert A. Richardson, special representative of the committee, will be transferred to OBI headquarters, where he will continue as a member of the OBI headquarters' staff.

OBI will enlarge its scope of activities and change its name to Oil-Heat Institute of America. Members will be asked to approve this change at the semi-annual meeting in New York on October 13. The expanded OBI will include in its membership oil burner manufacturers (domestic and industrial equipment), national and regional fuel oil marketers, incorporated dealer groups, accessory manufacturers and honorary members. The structure of the Board will provide for representation of all groups.

President Lewis has appointed J. P. Rainbault of General Electric Company as chairman of the membership committee. Mr. Rainbault will select the other members of this committee.

The constitutional committee, appointed to study and recommend changes in the constitution, consists of C. E. Lewis, Chairman, R. S. Bohn and G. B. Ferris.

M-H Radio Show

Minneapolis-Honeywell Regulator Company went on the air recently with a coast-to-coast Blue Network show, "Alias John Freedom." The initial broadcast was dedicated to the company's Victory Workers and the following programs will be in the interest of the war effort of today and automatic heat and air conditioning and controls for processing in industry in the post-war period. Minneapolis-Honeywell will be the first of a group of four teamed sponsors who will present this program each Monday night on a 124 station hookup.

These three men—the orchestra leader, the author and an actor—get together over Minneapolis-Honeywell's new radio show, "Alias John Freedom"

West Coast Merger

Pacific-Airmax Corporation is the name of the new firm formed by the merger of Pacific Gas Radiator Company and Airmax Corp. The merger was effected primarily to facilitate and extend the participation of both companies in the war effort. All Airmax products will now be manufactured in the Huntington Park plant of Pacific Gas Radiator Company. Helen A. Hartfield, formerly president of Pacific Gas Radiator, continues as chairman and president of the new firm. R. C. Gross, president of Airmax, has been appointed vice president and general manager, and A. A. Arnhym, also of Airmax, will be chief engineer.

M. P. and Supply Golf

The monthly golf meeting of the Chicago Plumbing Trades Golf Assn. was held August 13 at Briergate Country Club, Deerfield, Ill. Fifty-five members and guests were in attendance at the dinner; only 48 took part in the golf meet. In match play, Joe Comer won over Howard Doyle and is undisputed champion of the association. The contest for the runner-up in this event will be played off at the September meet between Chas. Barrow and Ed. Mortimer.

Hays Appointments

The Hays Corporation, Michigan City, Indiana announces the appointment of the Energy Control Company in Philadelphia, succeeding the Paul B. Huyette Company, Inc. The Energy Control Company has represented The Hays Corporation in the New York territory for the past several years. The Philadelphia territory comprises the eastern half of the state of Pennsylvania, all of Delaware and portions of Maryland, New Jersey, Virginia and West Virginia. Headquarters have been established at 3107 North Broad Street, and Lee Myers, formerly of The American Engineering Company, will be associated with Mr. Vollbrecht.

Announcement is also made of the appointment of Engineering Products Company, F. E. Anderson, manager, to the Southern West Virginia field with headquarters at Charleston, 304 Davidson Building.

The third appointment made recently was that of the Power Specialty Company, O. W. Muller, manager, with headquarters at Houston, Texas, 25 North Live Oak Street, the territory covering Southeastern Texas.

Brunswick's Mgr.

W. C. O'Brien has been appointed manager of the Plumbing Fixture Division, Brunswick-Balke-Collender Co., Chicago, replacing the late Frank B. Hackett. Mr. O'Brien has, for eleven years, been Pacific Coast manager for the Plumbing Fixture Division, and previously was associated with other companies in our industry, part of the time in Chicago.

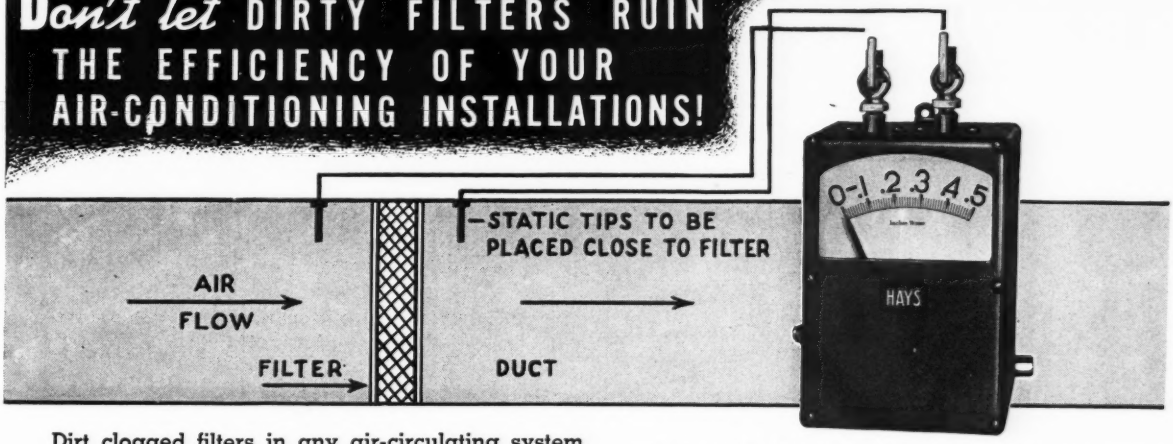
W. C. O'Brien, who has just been appointed manager of Brunswick-Balke-Collender's plumbing fixtures division.

Salvage Program

Herbert V. Kohler, president of the Kohler Company, is participating in the work of the American Industries Salvage Committee to enlist the full cooperation of individual industrial concerns behind the current scrap salvage program of the War Production Board, according to an announcement by Robert W. Wolcott, chairman of the committee.

Serving as liaison between the American Industries Salvage Committee and individual companies in the Plumbing and Heating industry, Mr. Kohler has written to companies in the industry urging full and complete cooperation with the program of the Industrial Salvage Section of WPB. He has also asked that each company appoint a responsible official to assist in any way possible the local general salvage committees that have been established by WPB in 12,000 communities.

Don't let DIRTY FILTERS RUIN THE EFFICIENCY OF YOUR AIR-CONDITIONING INSTALLATIONS!



Dirt clogged filters in any air-circulating system mean reduced efficiency and added power costs. On the other hand, changing filters oftener than necessary is downright waste.

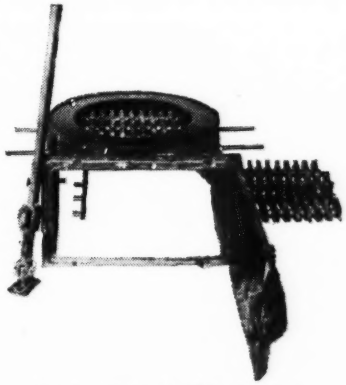
With a HAYS Air-Filter gage installed in a duct you know precisely, at all times, the condition of the filter and Static tips, installed on either side of the filter bank supply a differential air-flow measurement which is indicated on a scale in the remotely mounted gage. If desired, the gage may be made to flash or sound an alarm when filter resistance becomes excessive. And it is also furnished when wanted with electric contacts to operate a damper to control the flow of air through the duct.

The HAYS Air-Filter Gage employs the famous slack-leather diaphragm pressure measuring element and is of the high quality in design, materials and workmanship that has made Hays Gages internationally famous. The price is reasonable. Write us at 907 Eighth Avenue for Publication 40-278.

The HAYS CORPORATION
SINCE 1907 COMBUSTION INSTRUMENTS AND CONTROL
MICHIGAN CITY, INDIANA, U.S.A.

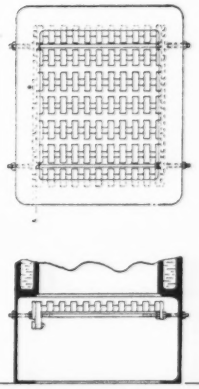
CATSKILL "VICTORY" GRATES

Emergency grates where you want them, when you want them! The universal set of grates that fit all domestic boilers! Many oil burner users will be required to convert to solid fuel! You can render a real service to your customers and to the War Effort if you are ready to meet the emergency! We are ready to help you!



Showing Grates Partially Installed Round Boiler

1. Catskill Victory Grates fit any round boiler up to 30" in diameter, or square boiler up to 30" in width by 30" in length. Supplied in 24" and 30" sizes they are easily reduced in multiples of ¾" by a few cuts with hack saw.
2. They are supplied complete with all grate bars, grate supports and shaking apparatus. All the parts for the Job are on the Job. No need to worry about missing grate lugs or other parts on the present boiler.
3. No need to stock a maze of sizes and types.
4. Only tools needed are electric drill, hack saw and wrench.



Showing grates in sectional boiler.

Not a makeshift device but a rugged rigid set of shaking grates. No priorities required.

CATSKILL METAL WORKS INC.
CATSKILL - - - - NEW YORK

TEAR OFF COUPON

Send our prices, details.

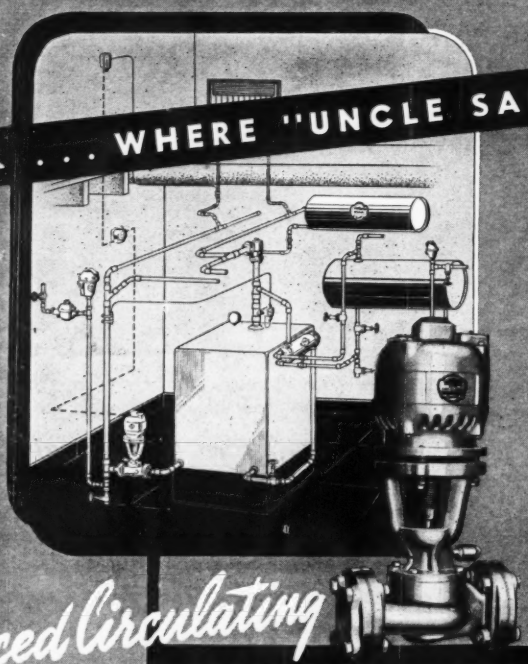
We sell Coal☐ Oil☐ Stokers☐ Oil Burners☐ Check

Name .....

Address .....

Yes! We Can Still Deliver Thrush Products

. . . WHERE "UNCLE SAM" SAYS OK!

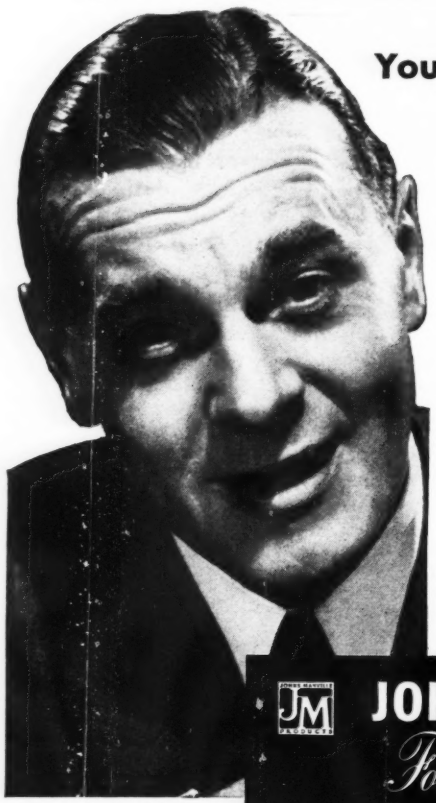


IMMEDIATE delivery of Thrush products can still be made to all who have the right to buy and install them under present W P B rules. Orders for projects having priority ratings of A10 or better and from anyone in war production qualified to apply for a rating, may be filled. The Maintenance and Repair Order also permits minimum purchases for that work. Your wholesaler will give you complete information and supply your needs if they qualify with Government stipulations. You can always depend on Thrush quality.

H. A. THRUSH AND COMPANY
PERU, INDIANA

Forced Circulating

THRUSH FLOW CONTROL SYSTEM OF HOT WATER HEAT



Your Johns-Manville Distributor says:

HELP HOME OWNERS SAVE FUEL THIS WINTER!

Cover every bare pipe with Johns-Manville Pipe Covering!

MANY of your regular customers face the necessity of heating their homes on less fuel this winter.

Check their plumbing and heating systems and make sure that the boiler and every bare pipe is properly protected with the right J-M Insulation. See that the hot water tank is insulated with a J-M Range Boiler Jacket. By doing this *NOW*, you will not only render an invaluable service to your customers—you will make an important wartime contribution.

Johns-Manville Asbestocel Pipe Covering and other insulations are stocked by leading Wholesale Distributors everywhere.

JM

JOHNS-MANVILLE INSULATIONS

For Plumbing and Heating Systems

East. Trade Golf

The regular monthly meet of the Eastern Trade Golf Association was held on August 18 at the Siwanoy Country Club, Bronxville, N. Y. Fifty-five members and guests attended. The prize winners and their scores were as follows:

J. W. Kreutner, 98-27-71; J. W. Powers, 88-15-73; C. H. Leibfried, 94-20-74; J. M. Williams, 91-16-75; H. Townsend, 94-19-75; R. W. Myer, 81-5-76; Lou Power, 84-8-76; W. L. Keplinger, 86-10-76; C. E. Kriedler, 94-18-76; J. B. Garfield, 84-7-77; D. W. Hughes, 88-11-77; A. P. Keasbey, 94-17-77. The September meet will be held at Ridgewood, N. J.

N. Y. Oil Heat Outing

One hundred members and guests attended the annual outing of the New York Oil Heating Association, Inc., at the Engineers Golf Club, Roslyn, L. I., on August 20. Both luncheon and dinner were served.

The feature of the day was a softball game between the manufacturers and the dealers. The score was even through the seventh inning, when another run was scored which gave the game to the manufacturers at 17-16. Ten innings were played, George Meyer of Conran Supply pitching for the dealers and Arthur Hanson of L. O. Koven & Bro. pitching for the manufacturers. Al Evans, Kleen Heat Sales Co., Brooklyn, a dealer, knocked three homers and Jim Wargas of Petrometer Corp. hit one for the manufacturers' team. A tug-of-war contest between the dealers and manufacturers was won by the dealers.

George Dotzaner won the silver golf trophy for the second time. Last year the association gave a silver plaque to be awarded to the member of the Old Timers' Club who was most active in sports, to be retained by the winner for one year and then passed on to his successor. It was taken home this year by George Gregory of Preferred Utilities Mfg. Co.

N. E. Golf Meet

The New England Metal Trades Golf Assn. held its regular August meeting at the Charles River Country Club. Prize winners were: D. Gray, first; E. T. Rowe, second; Frank Marshall and M. J. Flaherty, tied for third; F. A. Monroe, fifth; and H. Murdoch, sixth.

N.E. Wholesalers Meet

The board of directors of the Plumbing and Heating Wholesalers of New England, Inc., have decided that the group should hold its regularly yearly meeting in order that members might discuss ways in which the group may further the war effort. The meeting will be held at the Oyster Harbors Club, Osterville, Mass., September 26 to 28 inclusive.

Government officials will address the meeting regarding the various Government regulations which affect the industry. Details of the program and complete information as to train schedules will be available at a later date, it was announced.

Yearling Barr

Warren Barr Supply Company, organized August 11, 1941, has just celebrated its first birthday. Founded by three former members of Crane Company—W. N. Barr, president and treasurer; J. L. Campbell, vice president; and Harold Bergman, treasurer — the firm has, for the past year, been actively engaged in aiding the war effort.

Byrd Moves

Wm. M. Byrd, Jr., formerly sales manager of Alabama Pipe Company and now president, will take up his duties at Anniston, Alabama, around September 1, it was announced recently.

Fernald Dies

John M. Fernald, 52, who had been serving in Washington as chief of the air conditioning and refrigeration division of the War Production Board, died July 27 at Veterans Hospital, Mount Alto, Md., after a brief illness.

A former general manager of the Baker Ice Machine Co., of Omaha, Neb., Mr. Fernald had been with the WPB since last November. He was with the contract distribution division, as chief of its contract and placement service until the organization in March, under his direction, of the air conditioning and refrigeration division.

Widely known throughout the air conditioning and refrigeration fields, he served from 1936 to 1938 as president of the Refrigerating Machinery Association, which combined in 1940 with the Air Conditioning Manufacturers' Association under the name of the Air Conditioning and Refrigerating Machinery Association, Inc. Surviving are his wife, a sister and an aunt.

Indianapolis' Smoke

Drastic changes in Indianapolis' smoke abatement law, to provide for the setting up of an annual inspection and fee-collecting plan and the appointment of an advisory smoke control board of seven members, were recommended to the Board of Public Safety yesterday.

The proposed amendments to the ordinance were drafted after a fact-finding survey of the city's smoke problems was made by the Coal Producers' Committee for Smoke Abatement, Cincinnati, O., and the Indianapolis Coal Trade Association.

Scoville in Army

Howard B. Scoville, sales manager of the Econ-O-Col Stoker Division of Cotta Transmission Corp., Rockford, Ill., has been commissioned a 1st Lieutenant in the U. S. Army.

Howard B. Scoville

Although his R.O.T.C. training was in the Field Artillery, because of Mr. Scoville's experience in engineering transmissions, he has been assigned to the Tank and Combat Vehicle Division of the Ordnance Department, Chicago District, where he heads up the Transmission and Diesel Engine Section.

News Briefs . . .

Doyle Cody, previously located in Dallas, Texas, and covering the Texas and Louisiana territory for American Sanitary Manufacturing Company, Abingdon, Ill., has joined the Plumbing and Heating Branch, WPB, for the duration. Announcement of this change came from M. M. Petrie, sales manager of American Sanitary.

T. M. Bohen, president of **Whitehead Metal Products Company, Inc.,** announces that Elmer W. Silver, secretary, was elected treasurer of the company, succeeding the late William L. Rianhard, who died on July 24. Mr. Silver will continue as Secretary, to which office he was elected last March.

James P. Marsh Corporation has announced the change of the name of its subsidiary, E. A. Hill Company, Inc., to Dependable Manufacturing Company, Division of James P. Marsh Corporation. General offices of the subsidiary will be located at 2073 Southport Ave., Chicago.

News of Contractors . . .

Conservation Meeting

About 100 heating contractors, automatic heating dealers, manufacturers of heating equipment and fuel company representatives met at Horace Rackham Memorial, Detroit headquarters for engineering societies, on August 27. The meeting, sponsored by Research Products Corp., Madison, Wisconsin, was locally organized by Wm. G. Boales and the good turnout was evidence of the wide interest in the whole fuel conservation program.

Harvey Merker, president of the Engineering Society of Detroit, welcomed the group and expressed his appreciation of the fine work being done by the various branches to foster fuel conservation.

How Detroit and Michigan Chapters of the ASHVE had contributed to public education on the serious fuel shortages faced, was told by Michael B. Shay of American Radiator and Standard Sanitary Corp. and president of the Michigan chapter of the ASHVE. Further than the fuel problem, Mr. Shay told of the work undertaken by the War Service Committee of the ASHVE in conjunction with government services, in gathering scientific data on heating problems to be found at heights of 40,000 ft. and at temperatures of 73 deg. below zero.

Kemper Slidell, president, Research Products Corp. of Madison, told the assemblage that they were the guardians of heating installations in their communities and as such should lead the way in making the public fuel conservation conscious. He added that their clear duty was to save fuel and to serve customers.

The Plumbing and Heating Industries Bureau was represented by its president, H. O. Nelson of the Nelson Company of Detroit, who revealed that the Bureau had been informing the public nationally to good effect about heat conservation.

Filters and their importance in the conserving of heat were discussed by R. F. Norris, consulting engineer with Research Products, who stressed proper filter construction as the answer for a 10 per cent savings in fuel. Many filters are never changed due to construction shortages that do not facilitate easy cleaning and become huge fuel wasters.

Nelson Ross of Research Products Corp. analyzed filter construction and explained how foreign particles clogged filter air passages causing a steady decline in heating efficiency over a period of months. No set rules were given for filter changes because homes differed in dust quality and quantity but dealers were urged to accustom their customers to a twice-a-year change. The amount of fuel saved would amply reward the consumer for original filter cost and would help alleviate coal shortage due to transportation problems. The various questions of the visitors were openly discussed by Mr. Ross and the gravity of the fuel situation was reflected in their carefully worded queries.

P & H Industry Gives

Jere L. Murphy, president of J. L. Murphy & Co., and chairman of the plumbing and heating section of the 1942 campaign of the Greater New York Fund, has announced that the industry has contributed $11,099.25 thus far. Other members of the committee are: William Marin, president of the New York Plumbers Specialties Co., Inc.; P. J. O'Brien, Philip Carey Co.; Gustav E. Olsen, vice president of Fitzgibbons Boiler Co., Inc.; Arthur Hinrichesen, Tuttle & Bailey Manufacturing Co.; Morris Jarcho, president of Jarcho Bro., Inc.; Edward Smolka, Smolka Co., Inc., H. M. Reed, president of American Radiator & Standard Sanitary Corp.; A. N. French, Kohler Co., Inc.; Paul Berryman, Crane Co.; H. S. Loud, Trane Co., and D. A. MacWatt, of the Powers Regulator Co.

Enginemen Needed!

Enginemen (steam-electric) are needed to be put in charge of heating, refrigerating and ventilating systems in Federal buildings in Washington, D. C. The U. S. Civil Service Commission is recruiting enginemen for positions paying from $1,680 to $2,040 a year. Complete details may be obtained from first and second class post offices.

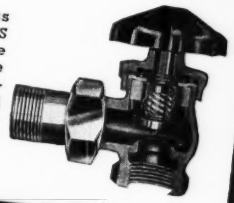
Civilian Defense

The Plumbing Contractors' Association of Chicago is cooperating in plans to repair possible damage to sewer, water and gas systems in case of bombing raids. A committee appointed by the Local Assn. on Civilian Defense is composed of John K. Dorsey, Chas. J. Stanley and Chas. Watson; this group recently conferred with a committee from the Department of Public Works to discuss cooperative action.

The picture at the left, below, shows James G. Vanassche, a director of The Detroit Assn. of Warm Air Heating and Air Conditioning Contractors; M. H. Vanassche, secretary of the same association; and Dewey L. Cain, vice president of the same group. Photo at right shows Harvey Merker, president of the Detroit Engineering Society speaking to those in attendance at the meeting sponsored by Research Products Corp.; Wm. G. Boales, Detroit; Kemper Slidell, president of Research Products Corp.; Michael B. Shay, president, Michigan chapter, ASHVE; Dewey L. Cain; H. O. Nelson, president of Plumbing and Heating Industries Bureau

In buying valves TODAY— take a cue from YESTERDAY

• A radiator trap with a highly sensitive thermostat element that assures efficient operation.



• A packless valve that *IS* packless. The exclusive Marsh metal-to-metal seal makes it permanently leak-proof.

• The No. 12 Drip Trap — ideal for rapid air and condensation removal from short mains, unit heaters, coils, etc. Typical of the complete Marsh line of float and thermostatic traps, and non-airbinding bucket traps.

FULL STEAM AHEAD

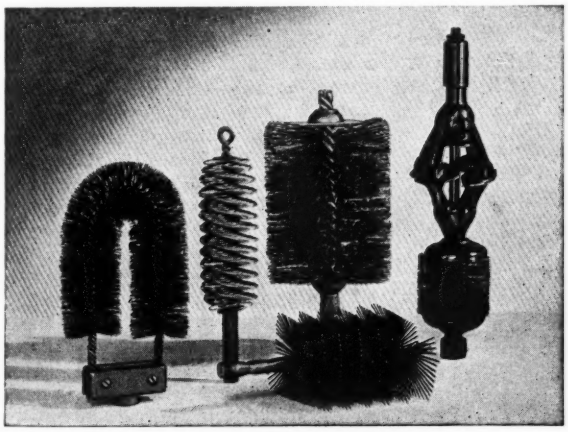
WITH valves, as with traps, vents, gauges, and thermometers, the only real yardstick has always been the ability to DO the job and to stay ON the job. That still holds true today . . . only more so.

The Marsh Products shown here are today's version of the practical, on-the-job dependability that heating men have relied upon during all the yesterdays since 1865. They are available for practically all essential needs.

MARSH

QUALITY HEATING SPECIALTIES SINCE 1865

JAS. P. MARSH CORPORATION
2051 Southport Ave., Chicago, Ill.



TEMPERED STEEL

Boiler Tube Cleaners
Flue Brushes — Wire
Heater Brushes — Handy
Cleaner Brushes — Fire
Brooms — Track Brooms

COMPLETE LINE

Worcester Brush & Scraper Co.
10 Austin Street, Worcester, Mass.

HELP SCARCE?

Save Both Time and Labor with FLEXIBLE Tools

Sewer and pipe cleaning is one of the necessary jobs that can't be neglected even in war-time.

FLEXIBLE has developed a complete set of time and labor saving tools that will get such jobs done at top speed with a minimum of man-hours.

When you use FLEXIBLES, shortage of labor need not prevent you from removing stoppages promptly.

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2-in. Corkscrew. Also available in other standard sizes.

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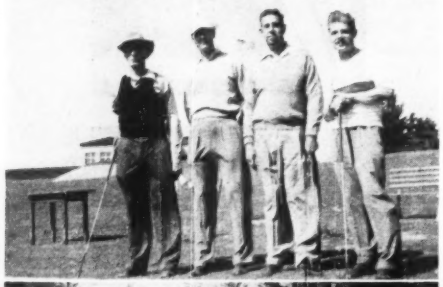
P. & H. Club Meet

Despite the heavy gale of wind sweeping in from the near-by Pacific, members and guests of the Plumbing and Heating Club of San Francisco, turning out 70 strong for the summer tournament and barbeque held at Millbrae Golf Club on August 27, came in with some better than average cards. Following are the low net winners: A class, E. Mitchell, 66; B Class, I. C. ("Ike") Bell, 60; C Class, J. J. McLeod, 64; D Class, Carl Swigert, 63. In the member group, J. O'Mara hit the blind bogey with a 73; among the guests, it was R. G. Fontaine with a 77. Among numerous birdies, Harry Morse copped two, with one each for Jack Camp, Ernie Nevers, W. Painter, C. Lundy, Norman Brown and Carl Swigert.

The gale also proved itself to be far from an ill wind when it created lusty appetites among 80 more members and guests who joined the golfers at the barbecue dinner, with Exec. Sec. Hal Sales acting as assistant master of ceremonies. During the course of the dinner, John H. Heil, newly elected president, awarded the President's trophy to Burr McConnaha who, besides a 100 per cent attendance record at each quarterly tournament during the past fiscal year, came through with a total net score of 276.

Below: Attending the San Francisco Plumbing and Heating Club tournament-barbecue. Top picture: Exec. Sec. H. L. Sales, at left, holding a string of wieners. These were part of refreshments dispensed at the pit near the tenth hole. At the extreme left of group in background is W. A. Taylor, chairman, golf committee. Second picture, left to right: J. C. McCabe, Griff Scott, Stewart Greenberg, and Burke Hills. Last picture: H. Angell, W. Willis, C. Tenney, L. Feters



Contractors' Pool

Organization of the first pool of small contractors under the auspices of the American Contractors War Advisory Committee to bid on war orders here was announced recently in New York following a meeting at the Waldorf-Astoria Hotel. The first group, comprising general contractors of New York City, includes these companies: Certified Contracting Corporation, Bertwell Construction Company, Hy-Grade Construction Company, Sheppard-Pollak Corporation and the New City Construction Company.

P. H. Wolf, chairman of the committee, said that several more companies will be added to this pool.

Albert Fechtner of the New Jersey State Master Plumbers Association was appointed chairman of the first New Jersey pool now in process of formation. A report on this group will be made at the meeting of the committee next Wednesday.

Robert Stevens, secretary of the Master Plumbers Association of Brooklyn, was named chairman of the first Brooklyn pool now being set up.

Robert R. Licht, vice president of the Bronx Master Plumbers Association, was chosen chairman of the first Manhattan-Bronx pool.

L. A. Code

A new water pipe code for the city of Los Angeles was adopted by the City Counsel on August 6 and sent to the mayor for signature.

Modernized and streamlined, with obsolete provisions of the present code eliminated, the new measure has received the endorsement of the Pacific Coast Plumbing Inspectors Association as well as the Los Angeles Merchant Plumbers' Association.

The new code provides for a $1.00 water piping permit for the installation of any piping, except when installed by a person installing plumbing in the same building; water piping not exceeding 50 feet in length in the same building; and water piping used solely for fire or lawn sprinkler systems. It also specifies that water piping and fittings may be of brass, copper, cast iron, wrought iron or galvanized iron or steel.

Md. Crab Feast

The Association of Master Plumbers of the State of Maryland will hold its regular annual crab feast and picnic on August 13 at Conrad's Ruth Villa Shore. Dinner and supper will be served by a Baltimore caterer, music will be provided for dancing and swimming and amusements of various kinds will be available.

Mich. Golf

The Michigan Trade Golf Association held its regular August meeting at the Plum Hollow Golf & Country Club. Prizes were awarded as follows: The first low net prize was won by C. C. Mosack with a score of 86-15:71. R. K. Milward was awarded the second low net prize with a score of 97-20:77. Third low net prize went to R. J. Collins with a score of 111-32:79. J. T. Holward, with a score of 105-26:79 was awarded fourth. Prizes at this meet were donated by E. Sanger, Consolidated Brass Company, Roy Adams and Minneapolis-Honeywell Regulator Co.

Philadelphia Meet

The regular monthly meeting of the Philadelphia association was attended by more than 200 members. Chief among the attractions were a preview of the "Ominous Arms Case" the plumbing industry motion picture, and an address by Dr. James F. Bogardus, Pennsylvania State Price officer for the OPA. Dr. Bogardus briefly explained the necessity for the ceiling prices and told of experiences in other countries in the battle against inflation.

Following the showing of the moving picture cards were passed around among the members who were asked to write down their suggestions as to how the film could be improved and to compliment those parts which most strongly appealed to them.

Ed Rinear spoke on the formation of classes in lead burning. John B. Hering, a member of the Pa. state legislature, spoke briefly on proposed legislation.

Trenton Outing

The Master Plumbers Association of the City of Trenton, N. J. held its annual outing at Plaag's Grove on July 29. A full day's program of sports and dinner were planned by an entertainment committee including John C. B. Wouters, chairman, Emil L. Pfleider and William J. Lee.

Copper and Brass . .

Yesterday We Used THEM for the Finest Plumbing Systems . .

Today THEY "Keep 'Em Rolling!"

Just a few months ago we still thought, here in America, that we might keep out of the big scrap. Some of us were isolationists or semi-isolationists. We wanted nothing from anyone . . . sure we were willing to lend a helping hand to those struggling powers that were fighting aggression—who thought along the same lines as we did—but, in the main, we wanted to mind our own affairs and go on with the business of building up rather than tearing down—of pursuing peace and prosperity.

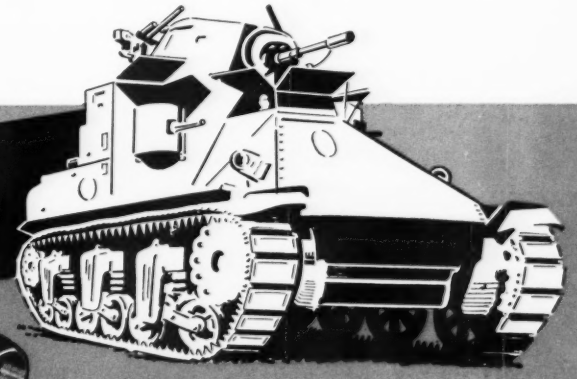
And we, at the Mueller Brass Co., wanted to go on making, among other good products of copper and brass, STREAMLINE COPPER PIPE AND FITTINGS FOR THE FINEST PLUMBING AND HEATING CONDUCTING SYSTEMS IN THE WORLD. We didn't want war business . . . we wanted to keep our peace business with the plumbers and steamfitters of America.

But the very copper and brass of which pipe and fittings were made, must now be used for the weapons of war. We know now that there can be no isolationism and if we are to preserve our American way of life, we must work and fight immeasurably harder than we ever did before.

Our plant is now engaged 100% in the production of war materials. That's our first job, but we are not neglecting the future. Our people, who are not required for war production, are planning and designing new products and improvements in the old so that we can improve our service to you when peace comes once more and aggressive forces shall be rationed and controlled.

We know that the going is tough for our former good customers. There are many restrictions to practically all available business. If you have a problem, maybe we can help. See your jobber or write us.

Keep 'em Rolling!



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PORT HURON, MICHIGAN

SERVING GOVERNMENT

Buyers and Specifiers

DO YOU KNOW Your Federal Agencies?

Listed below are the numerous Federal Alphabetical Agencies together with their respective definitions. We suggest you keep this list handy for ready reference.

★ ★ ★

AAA	—Agricultural Adjustment Administration
BAE	—Bureau of Agricultural Economics
BLS	—Bureau of Labor Statistics
CAA	—Civil Aeronautics Administration
CAB	—Civil Aeronautics Board
DAR	—Defense Aid Reports
DPC	—Defense Plant Corporation
DSC	—Defense Supplies Corporation
EDB	—Economic Defense Board
EHFA	—Electric Home and Farm Authority
FBI	—Federal Bureau of Investigation
FCA	—Farm Credit Administration
FCC	—Federal Communications Commission
FCIC	—Federal Crop Insurance Corporation
FDA	—Food and Drug Administration
FDIC	—Federal Deposit Insurance Corporation
FHA	—Federal Housing Administration
FHLBA	—Federal Home Loan Bank Administration
FLA	—Federal Loan Agency
FPC	—Federal Power Commission
FSA	—Farm Security Administration or Federal Security Agency
FTC	—Federal Trade Commission
FWA	—Federal Works Agency
GAO	—General Accounting Office
GPO	—Government Printing Office
HOLC	—Home Owners' Loan Corporation
ICC	—Interstate Commerce Commission
MRC	—Metals Reserve Company
NACA	—National Advisory Committee for Aeronautics
NHA	—National Housing Agency
NLRB	—National Labor Relations Board
NRPB	—National Resources Planning Board
NWLB	—National War Labor Board
NYA	—National Youth Administration
OCD	—Office of Civilian Defense
OEC	—Office of Export Control
OEM	—Office for Emergency Management
OFF	—Office of Facts and Figures
OGR	—Office of Government Reports
OPA	—Office of Price Administration
OSRD	—Office of Scientific Research and Development
PHA	—Public Housing Authority
PRA	—Public Roads Administration
PWA	—Public Works Administration
REA	—Rural Electrification Administration
RFC	—Reconstruction Finance Corporation
RRB	—Railroad Retirement Board
RRC	—Rubber Reserve Company
SCS	—Soil Conservation Service
SEC	—Securities and Exchange Commission
SMA	—Surplus Marketing Administration
SSB	—Social Security Board
SSS	—Selective Service System
SWPC	—Smaller War Plants Corporation
TVA	—Tennessee Valley Authority
USCG	—United States Coast Guard
USDA	—United States Department of Agriculture
USES	—United States Employment Service
USIS	—United States Information Service
USMC	—Women's Army Auxiliary Corps
WAAC	—Work Projects Administration
WPA	—War Production Board
WPB	

GOVERNMENT Buyers and Specifiers in many of the Federal Agencies listed at the left are using DOMESTIC ENGINEERING CATALOG DIRECTORY each day in the purchasing and specifying of plumbing, heating, piping and air conditioning products and equipment.

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TIME is of utmost importance to every buyer and specifier engaged in the war effort. Delays in securing vital equipment and materials can hamper seriously the progress of wartime projects. Manufacturers whose product information will reach these men through the medium of the 1943 DOMESTIC ENGINEERING CATALOG DIRECTORY will not only contribute materially to the cause of victory, but will earn the gratitude of war buyers and specifiers by incorporating complete specification and technical data in their Catalog pages.

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Cause of Rust

Dr. J. C. Warner, head of the department of chemistry at Carnegie Institute of Technology, Pittsburgh, and F. C. McIntosh, chairman of the committee on research of the American Society of Heating and Ventilating Engineers, announce the consummation of a cooperative agreement to investigate one of the causes of rust in steam pipes and equipment. The particular phase of the problem to be studied is the process by which carbon dioxide, entering with the steam, becomes dissolved in the condensate.

The research work will be carried on in the Institute's chemical laboratory in an apparatus especially designed to represent types of equipment in actual service. D. S. McKinney, assistant professor of chemistry at Carnegie Tech, will supervise the work which will be done by John J. McGovern, a graduate student. The test should give information that will help improve engineering and trade practices in rust prevention and thus reduce the number of replacements made necessary by corrosion.

This program of research was outlined by the ASHVE Research Technical Advisory Committee on Corrosion of which Leo F. Collins, Detroit, is the chairman. Other members of the committee are H. E. Adams, South Norwalk, Conn., N. D. Adams, Rochester, Minn., J. F. Barkley, Washington, D. C., W. H. Driscoll, Syracuse, N. Y., T. J. Finnegan, Buffalo, W. Z. Friend, New York City, E. W. Guernsey, Baltimore, W. E. Heibel, New York City, A. R. Mumford, New York City, R. R. Seeber, Houghten, Mich., E. T. Selig, Jr., Kansas City, Mo., F. N. Speller, Pittsburgh, and C. M. Sterne, Long Island, N. Y.

Md. Outing

The annual summer outing of the Association of Master Plumbers of the State of Maryland, Inc., was held at Conrad's Shores on Middle River. No speeches or other formalities were permitted; the entire day was devoted to playing and eating. Edgar E. McLain, president, and Gustave G. Wirth, secretary, kept the affair going at top speed.

S. F. Dinner Dance

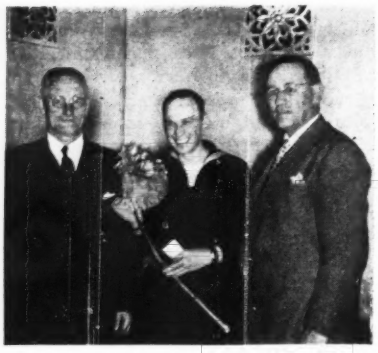
Daniel Hayes, vice president, Heating, Piping and Air Conditioning Contractors National Assn. and president of the San Francisco chapter, reported briefly what took place at the national convention held in Milwaukee recently, when he addressed eighty members, their wives and friends at a dinner meeting at the St. Francis Hotel, July 18. He emphasized the need for full-scale, national cooperation—"otherwise, you'll simply be wandering in the wilderness." . . . "National organizations are being recognized more and more as a power in the land," this latter after pointing to certain association accomplishments that have meant much to the specialty contractor. . . . "And let me add," the speaker concluded, "that unless we aid our government in its scrap drives and bond sales, we'll be in for a tough time."

As a spontaneous gesture of good will for the armed forces, "the first bluejacket to be spotted in the lobby" was invited to dinner and seated at the head table: he was C. T. Pyles, petty officer, 1st class, U.S.N. He was given a rousing reception and presented with both a modest purse and a gorgeous ten-inch dahlia bloom from the gardens of Andrew Harper.

Baltimore Meeting

A special meeting of the Progressive Master Plumbers Association of the State of Maryland, Inc., has been scheduled for September 10. All master plumbers of the area, whether members or not, have been invited to attend. A special attraction has been provided in addresses by Mr. Rues, an official of the WPB, and Roy Downs, American Radiator & Standard Sanitary Mfg. Corp., Baltimore. The former will speak on what members of the industry may expect so far as supplies are concerned, while the latter will give the manufacturers' viewpoint of the materials situation.

The group of men below are plumbing and heating contractors, journeymen plumbers, sheet metal workers, helpers and stenographer who worked on the Sioux Ordnance Depot. Hutchison, Stover & Piper, Sidney, Neb., were plumbing and heating contractors on the job. Seated, left to right: E. C. Young, Alliance, Neb., contractor; George Hall, Missouri Valley, Ia., journeyman; Laurence Johnston, Bayard, Neb., contractor; Cecil Young, Alliance, Neb., helper; Dave Johnston, Bayard, Neb., helper; Jack Hutchison, Sidney, Neb., helper; L. E. Saltzgaber, Bridgeport, Neb., contractor; E. O. Cobb, Akron, Col., contractor; Carl Hutchison, Sidney, Neb., member of contracting firm and foreman; Jack Scott, Torrington, Wyo., contractor; Charlie Parsons, Missouri Valley, Ia., contractor; C. P. Minner, Scotts Bluff, Neb., U. S. Supply Co.; Janice Stover, Sidney, Neb., stenographer; George W. Piper, Sidney, Neb., member of contracting firm. • Standing, left to right: Ted Wurl, Sterling, Col., sheet metal worker; O. K. Eckels, Fremont, Neb., sheet metal worker; Jim Harrison, Neb., journeyman; Bud Harrison, Morrill, Neb., sheet metal helper; Mac, from Texas, sheet metal worker; Chas. Newman, Ft. Morgan, Col., sheet metal worker; Walt Mergelman, Ft. Morgan, Col., sheet metal worker; S. P. Dungan, Ogallala, Neb., contractor; M. P. Gibbs, Scotts Bluff, Neb., sheet metal foreman; E. L. Wolf, Sidney, Neb., helper; Mr. Reeves, Sterling, Col., sheet metal helper; Bob Titus, North Platte, Neb., helper; J. P. Deernell, Ft. Collins, Col., sheet metal worker; George Loebe, Sidney, Neb., journeyman; Bud Doolittle, North Platte, Neb., helper; Fred Titus, North Platte, Neb., journeyman; F. E. Patterson, Omaha, Neb., sheet metal worker, Paul Randall, Scotts Bluff, Neb., sheet metal worker; Art Hehnke, Scotts Bluff, Neb., sheet metal worker; Harry Stover, Sidney, Neb., member of contracting firm; Bob, of Sterling, Col., sheet metal helper; and Frank Tierney, North Platte, Neb., plumbing labor



The San Francisco chapter of HPACCNA invited the sailor in the center of the group above to dine with them and be their guest for the evening recently. Left to right: Andrew Harper, charter member of the local group; C. T. Pyles, petty officer, 1st class; Daniel Hayes, president

P. C. P. I. Meets

The Pacific Coast Plumbing Inspectors' Association introduced an innovation at its August 12 meeting in the form of a Quiz Program at which questions from the floor on plumbing subjects were answered by a master-of-ceremonies.

Ted Wait, Los Angeles master plumber, served as quiz chairman. The questions dealt mainly with interpretations of the Federal Emergency Plumbing regulations and what local contractors may and may not do under those regulations. All of the members expressed their interest in this type of get-together.

Approximately 50 members of the southern division of the association attended. Walter F. Stein, Los Angeles, vice-president, presided.

Smoke Commissioner

Robert M. Boyles, consulting engineer who in recent months has been supervising installation of production equipment at the St. Louis Ordnance plant, has been named St. Louis Smoke Commissioner to succeed Raymond R. Tucker, it was announced Aug. 6 by Mayor Becker.

This city has experienced extremely gratifying results from its anti-smoke ordinance. (See item below).

St. Louis Smoke

Missouri's Supreme Court, in a decision handed down Aug. 6 in Jefferson City, unanimously upheld the constitutionality of St. Louis' smoke elimination ordinance, which, besides giving that city two comparatively smokeless winters, has attracted nationwide attention as a model for other cities.

The state's highest tribunal overruled a number of attacks on the validity of the municipal measure and also refused to order the release of a St. Louis resident sentenced to jail as a violator.

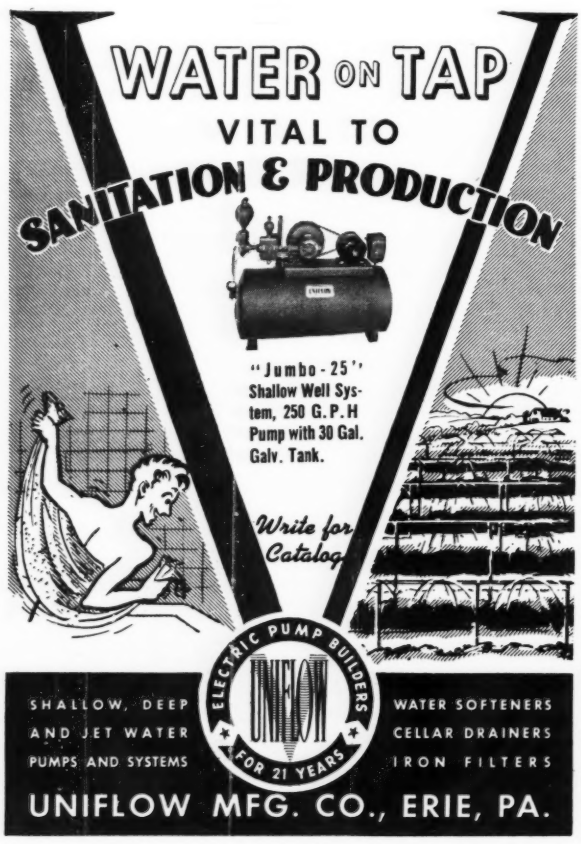
The opinion held that Missouri law empowers St. Louis to regulate the smoke nuisance within its limits and to use any reasonable enforcement methods.

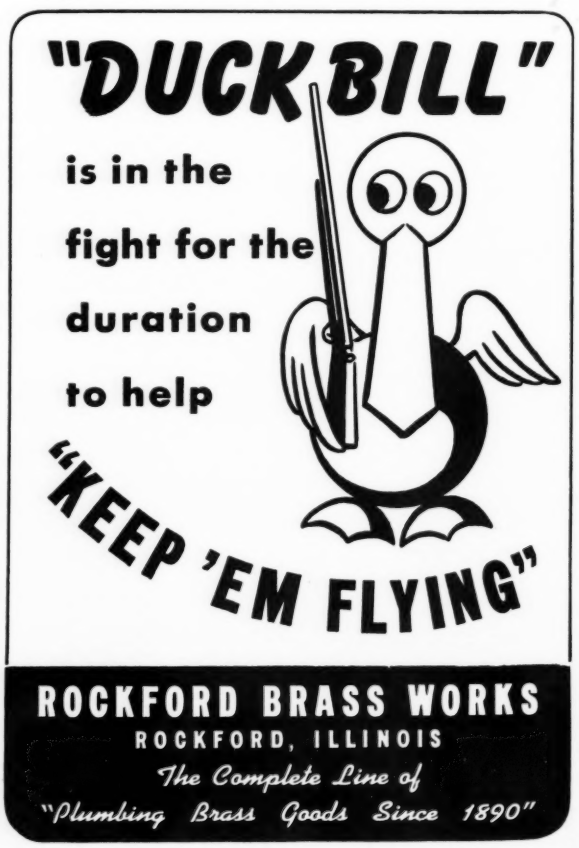
The first year following passage of the ordinance, it was noted, there was only 2.4 per cent as much thick smoke as the year before, and in the second year there was only 1.87 per cent as much thick smoke. The number and duration of moderate smoke palls also was drastically reduced.

Observing that the state legislature has provided that "the emission or discharge into the open air of dense smoke within the corporate limits of any city of the state is hereby declared to be a public nuisance," the court held that the only time a city cannot control the methods by which it enforces a smoke law is when the methods are "so arbitrary as to be violative of the constitutional rights of the citizens."

Chicago Outing

The North and West Side Master Plumbers Pleasure Club recently staged a week end outing at Twin Lantern Resort, Bass Lake, Indiana. A number of master plumbers and their families made the trip. The club has decided to abandon plans for its annual picnic this year.





Obituaries

Hugh O'Hara

Hugh O'Hara, Sr., 65, who, until his retirement seven years ago was a partner in the Cincinnati Plumbing and Heating Co., died recently. He is survived by his wife, one son, one brother and two sisters.

Andrew G. Elliott

Andrew G. Elliott, 82, for more than 50 years the owner of the A. G. Elliott Heating Co., of Germantown, Pa., died on July 29. He is survived by one daughter and a son.

John R. Geiger

John R. Geiger, 47, member of the Clifton (N. J.) Master Plumbers Assn., died recently in that city. He is survived by his wife, one son, his mother, and four sisters.

Lewis M. Brightman

Lewis M. Brightman, sales manager of Grinnell Company, Providence, R. I., died recently. Mr. Brightman was one of the best known figures in New England's plumbing and heating industry.

Dan Carroll

Dan Carroll, 62, died at his home in Euclid, Ohio, recently. Mr. Carroll, a plumbing contractor for many years and president of the Cleveland suburb's city council, is survived by his wife, two sons and a daughter.

Wm. C. Wagner

Wm. C. Wagner, 67, a Chicago plumbing contractor and member of the Chicago association, died recently of a heart attack. He is survived by one daughter.

Frederick T. Oakes

Frederick T. Oakes, 82, a retired heating engineer died recently at his home in Croton on Hudson. He is survived by one daughter and a brother.

Alfred Fort, Jr.

Alfred Fort, Jr., 54, plumbing contractor of Mount Holly, N. J., died at his home in that city recently. He is survived by his wife, three sons and one daughter.

Paul C. Owens

Paul C. Owens, 47, branch manager of the Kennedy Plumbing Supply Company of Cleveland, died recently as the result of severe injuries sustained about one year ago. Mr. Owens is survived by his wife, two sons, three sisters and a brother.

New College Course

A new course which will fit graduates for positions in more than 100 branches of the building industry, including air conditioning, heating, plumbing and steamfitting, will be offered this fall for the first time at the University of New Hampshire, Durham, N. H.

The four-year curriculum, leading to a Bachelor of Science degree and planned in co-operation with the Johns-Manville Co., prepares students to organize and coordinate the production forces of the light building industry. A large supply of trained manpower is needed in this field in each community, it was pointed out by responsible officials.

Chicago Cooperates

The Plumbing Contractors' Association of Chicago is cooperating fully with the WPB in regard to substitution of materials that may be necessary to win the war. The president of the association, Robert E. Murphy, has suggested to Paul Gerhardt, Jr., building commissioner, that it would be advisable to amend Section 82-23 of the Municipal Code permitting, for the duration of the war, the use of cast iron soil pipe and fittings as set up by the War Production Board in their Schedule 4, Limitation Order No. L-42, as amended, effective June 1, 1942. This type of pipe is somewhat lighter in weight than extra heavy cast iron, now required by ordinance, and is the only cast iron soil pipe permitted to be manufactured now.

Convention Dates

September 26 to 28—WHOLESALERS—The 31st convention of the Plumbing and Heating Wholesalers of New England, Inc.; to be held at the Oyster Harbors Club, Osterville, Mass.

October 13.—OBI—Semi-annual meeting of Oil Burner Institute; to be held in New York.

November 9-13.—API—Twenty-third annual meeting of the American Petroleum Institute; to be held in Chicago, with headquarters at the Palmer House.

November 30-December 5—POWER SHOW—The Fifteenth National Exposition of Power and Mechanical Engineering: to be held in Grand Central Palace, New York City.

News of Women . . .

The photographs below, previously unpublished, were taken at the 1942 convention of the NAMP. Top row, left to right: Mrs. J. Suda, St. Louis, president, Missouri State Auxiliary; Mrs. Royal Berg, Minneapolis; Mrs. E. C. Spangler, Seattle, both national directors of the auxiliary; Mrs. Emily Hornbrook, Kansas City, past president and historian of the NAMP auxiliary. Bottom row, left to right: Mrs. H. Merwin Porter, Minneapolis; Mrs. E. A. Balling, San Francisco; Mrs. Rose Friend, Milwaukee, auxiliary chaplain; Mrs. Jos. J. Mueller, Milwaukee, second vice president

News of Business . . . . .

Business Firm

● *Radiation is the only item showing increase over* **1942.** *Range boilers and oil burners decline most.*

According to a release which has just been issued by the Department of Commerce, sales of plumbing and heating wholesalers during the month of June 1942 were 4 per cent above June of 1941. These same wholesalers reported a gain for the six-month period of 1942 of 25.0 per cent. In 1942, the average sales per wholesaler for the first half were $389,324.55, as compared with $299,522 in the first six months of 1941.

Thirty-nine key wholesalers have reported a 26.60 per cent decrease in July as compared to July of 1941, and a 5.64 per cent increase for the first seven months as compared with the like period of 1941. It will be noted that the largest decrease for the month of July was reported by the West North Central States, with the East North Central States showing the smallest loss. For the seven-month period, the Middle Atlantic States reported the largest decrease, followed by the West North Central States. As is to be expected, because of the government restrictions, 25 have stated that they expect August business to show a decline from last year, two expect it to be better, two about the same, and 10 made no comments.

In shipments of plumbing and heating equipment, radiation is the only item showing an increase in the first half of 1942 as compared with 1941. The largest decline was reported in range boiler shipments, closely followed by a decrease in oil burner shipments of 40 per cent. In a release from the Committee of Ten, it is reported that residential stokers accounted for all of the decline in sales of stokers during 1942. This is due mainly to the stopping of stoker sales activities on this size for several weeks last spring because of a War Production Board order.

This order was later relaxed and sales of residential size stokers are now permitted without priority ratings as long as the stocks of the dealer, distributor and manufacturer last. Sales of commercial and industrial sized stokers increased during the first half over last year. This increase reflects the expansion in the war and industrial demand for steam, heat and power.

According to figures just released by the Department of Commerce, the volume of new construction in the second quarter of 1942 was $3,297,000. This is 25 per cent greater than the preceding quarter and 28 per cent above the same period last year. This record level was reached despite the decline in private construction. Public war construction, one and a half times as large as in the previous quarter and almost three times as large as in the same period a year ago, accounted for the rise.

Construction was started on 302,000 new dwelling units in non-farm areas during the first half of 1942, principally to provide homes for war workers. This is an 18 per cent decrease from the corresponding period of 1941. This drop, which is the result of a 38 per cent decrease in new construction by private builders, was due largely to the WPB's order of April 9, which halted all but the most essential construction.

Of the dwelling units constructed in the first half of 1942, one-family dwellings comprised about 85 per cent of the total; 2-family dwellings accounted for 4 per cent and apartment houses for 11 per cent. This is approximately the same as the distribution in the first half of 1941. In the first quarter of 1942 an unusually large proportion of multi-family dwellings were started, but this was offset in the second quarter by the large number of 1-family units which were put under construction contract.

To date, according to estimates of the Department of Commerce, public war construction has increased at a rate which more than offsets the decline in private and other public construction. In the second quarter, public war construction—which includes military and naval construction, war plant construction, war housing and defense public works totalled $2,100,000,000.

West Philadelphia

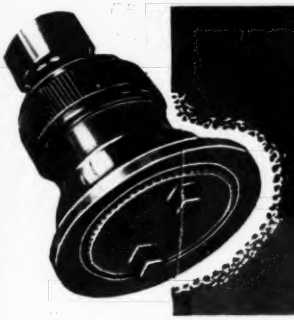
The regular monthly meeting of the West Philadelphia Master Plumbers Assn. featured a talk by state president, Fred Kenneck, who told of priorities problems and outlined the work being done by local and state associations. The urgent need for skilled journeymen was stressed by Mr. Kenneck and he urged the master plumbers to read their business publications more thoroughly, especially that they might keep up on all the new products being introduced. Ed Gannon gave a report of the recently held picnic and called attention to the September meeting which will be a joint get-together of the auxiliary and masters' group.

Key Wholesalers

	% of change July, '42 over July, '41	% of change 1st 7 Mos., '42 over 1st 7 Mos., '41	Better	Same	Worse	No Comment	Total Reports
New England States	—22.41	—3.50	1	1	..	1	3
Middle Atlantic States	—20.79	—9.07	1	1	7	4	13
East North Central States	—18.95	—4.30	..	..	8	2	10
West North Central States	—39.06	—5.59	..	..	5	3	8
South Atlantic States	—22.47	2.50	..	..	3	..	3
Pacific States	—30.77	—.08	..	..	2	..	2
United States Total	—26.60	—5.64	2	2	25	10	39

Shipments of Plumbing and Heating Equipment

	June, 1942	June, 1941	First 6 Mos., 1942	Percent of change First 6 Mos., 1942 As Compared to First 6 Mos., 1941
Mechanical Stokers Classes 1, 2 and 3 for domestic apartment and small commercial use	11,365	21,401	50,795	—22.98
Oil Burners Number of Units	32,685	8,441	80,779	—40.07
Steel Boilers Number of Units	1,204	1,405	7,256	—19.41
Range Boilers Number of Units	40,538	85,784	286,745	—42.13
Domestic Water Systems Number of Units	16,085	24,448	108,403	—11.24
Cast Iron Boilers Thousands of Pounds	13,316	21,856	95,529	—4.03
Radiation Thousands of Square Feet	5,168	6,453	34,295	+8.29



IT'S NEW! IT'S PLASTIC! IT CONSERVES CRITICAL MATERIALS IT'S THE *Speakman* ADJUSTA-SPRAY SHOWER HEAD

SP2410 Speakman Plastic Adjusta-Spray Ball Joint Shower Head, with ½" I.P.S. inlet.

Note how the grooves in the outer edge of the face plate are arranged to eliminate the possibility of a hollow, round spray with "dry center."

Out of the search for new materials to help offset the present shortage, Speakman presents the new Adjusta-Spray Shower Head! *All plastic* instead of brass!

Rigorous tests under hot water . . . sudden switching to cold water and back to hot again . . . proved this new plastic shower head withstands severe temperature extremes without warping or softening! At the same time it maintained the same fine individual spray jets . . . discharged the same full invigorating spray . . . and provided full body coverage.

Self-cleaning . . . durable . . . corrosion resistant . . . this new shower head in every way is a worthy addition to the Speakman line . . . famous for faultless performance and quality materials. Your customers can *continue* to enjoy the full measure of comfort that has always characterized Speakman showers.

For all your new installations . . . for all your replacement jobs . . . use Speakman Showers equipped with Plastic Adjusta-Spray Shower Heads! Good deliveries can be made on rated orders.

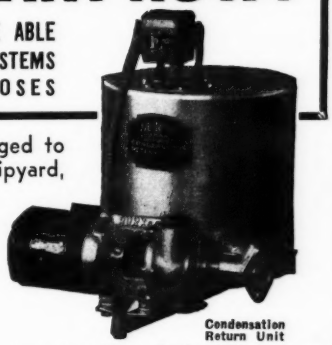
SPEAKMAN COMPANY, WILMINGTON, DELAWARE

SPEAKMAN

SHOWERS • SHOWER HEADS • BATH FIXTURES • SI-FLO (SILENT) FLUSH VALVES
LAVATORY FIXTURES • SINK FIXTURES • INSTITUTIONAL AND INDUSTRIAL FIXTURES

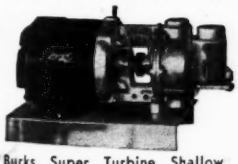
ARE YOU DOING YOUR PART NOW?

BURKS DEALERS ARE ABLE TO SUPPLY WATER SYSTEMS FOR WAR PURPOSES



Condensation Return Unit

Every Burks Dealer is urged to contact every factory, shipyard, munitions plant or other industry to find out their pump and water system requirements. War industries need dependable, unfailing water systems and pumps, such as Burks can provide. Burks Pumps have only one moving part, need less servicing, deliver a larger volume of water, seldom need any attention and always can be depended upon to perform at top capacity.

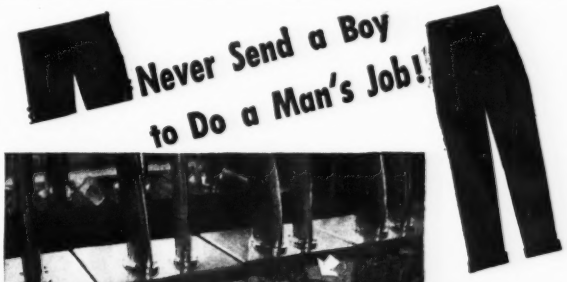


Burks Super Turbine Shallow Well Pump for large capacities. Also replacement pump.

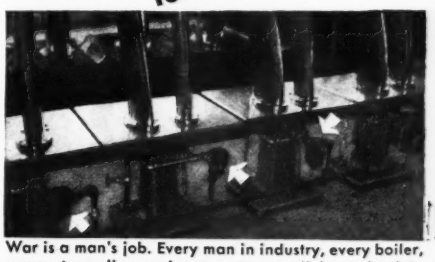
GET ORDERS NOW

We will help you in every way possible to get orders, but all orders come through our regular dealer-jobber organization.

DECATUR PUMP CO., 33 Elk St., Decatur, Ill.



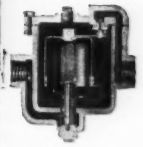
Never Send a Boy to Do a Man's Job!



War is a man's job. Every man in industry, every boiler, every steam line and every steam coil is strained to the utmost. There's no time to train men, to add boilers, enlarge lines, insert more steam coils — but there is time and a way to increase their capacity 25 to 50% with Sarco Steam Traps.

In many cases the steam trap that was O.K. yesterday is not the right kind of trap to do the man's job of today. It may be too slow, backing up condensate, reducing your output. Or it may be wasting too much heat. Or perhaps it is not letting the air out fast enough.

Sarco makes four widely different types of steam traps and eight distinct types of temperature control. Why not put it up to the nearest Sarco Representative to study your steam, hot water service and cooling problems and show you what could be done with Sarco Steam Savers? Catalog No. 350.



SARCO BUCKET STEAM TRAP

157

SARCO SAVES STEAM

SARCO COMPANY, INC.
475 Fifth Avenue, New York, N. Y.
Sarco Canada Ltd., Federal Bldg., Toronto, Ont.

Comfortization

TO STEP UP PERFORMANCE WHEREVER PHYSICAL LIMITS ARE STRAINED!

IN THE AIR, in the factory, in the home—wherever the Fight for Freedom imposes new and greater limits on human performance—there PACIFIC-AIRMAX heating and conditioning equipment does its vital, timely job of increasing human efficiency through greater comfort.

PACIFIC-AIRMAX CORPORATION—formed through the merger of AIRMAX CORPORATION of San Diego, California, with PACIFIC GAS RADIATOR COMPANY of Huntington Park, California—now combines in one fully staffed and equipped plant complete facilities for the production of special high-altitude heating and comfortizing equipment for aircraft and a complete line of PACIFIC-AIRMAX gas heating and ventilating equipment for America's factories, training stations, cantonments and defense homes.

PACIFIC-AIRMAX engineers are developing and applying advanced design principles to wartime heating equipment that will be reflected in a new, still better and more saleable line of PACIFIC-AIRMAX equipment for peace-time uses after Victory is won.

Pacific PRC Airmax

HUNTINGTON PARK. CORPORATION CALIFORNIA

News of Products

Bathroom Cabinet

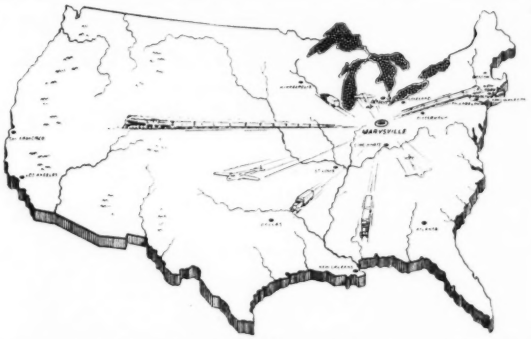
One of the many changes the war has brought to home builders is this new-type wood bathroom cabinet, which has been designed to conform to the metal conservation program. It is attractive in appearance and made to resist warping, shrinking and swelling.

Listed Features: The cabinet body of the new models, of which there are two distinctive types, is made of kiln dried hardwood, with double locked joints. The wood-framed wall mirrors come in six sizes and are said to be of double-strength quality. The finish is three coats baked on white enamel. One of the features of this cabinet, especially emphasized by the manufacturer, is the neat mirror frame of steel (by permission of WPB) which is finished to match the cabinet. The equipment consists of two glass shelves, a bartype door stop, stainless steel door strike and a bullet door catch. The door-back is of moisture-proof composition board.

Manufacturer: Miami Cabinet Division, The Philip Carey Mfg. Co., Marysville, Ohio.

Plastic Slip-Nuts

Developed to withstand severe usage and to insure longest life, these plastic



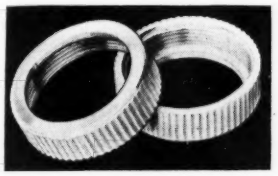
Strategically Located for Maximum Service

H. B. Salter Mfg. Company, Marysville, Ohio, is located in the "heart" of Ohio's central manufacturing district on several important state highways linking vital federal highways with it. It is served by two major trucking lines and by the New York Central railroad, each giving excellent attention to this community. Marysville is a few minutes' drive from Columbus, Ohio's capital, which puts it in close proximity to metropolitan transportation facilities. There will be no delay at this point when those war production jobs are placed with this company.

H. B. Salter MFG. CO.

MARYSVILLE, OHIO

slip-nuts for flush elbows are molded one-piece and are pure porcelain white. Because of their light weight



they are convenient to pack, handle, and install.

Listed Features: It is reported by the manufacturer that they will not corrode, tarnish nor discolor, have no paint or enamel to chip off, and are resistant to every water content. For 2 in. pipe, 2⅝ in. OD, it has a flushed edge for either finger tightening or pipe-wrench. The slip-nuts are said to go on smoothly and firmly.

Manufacturer: American Molded Products Sales Co., Chicago, Ill.

Water Closet

An improved closet, with a new design tank more pleasing in design than that previously furnished, is now available at no change in price.

Listed Features: This closet replaces the regular "B-5140 Duplex." The new design tank has an integral china overflow and ground-in valve seat, with no change having been made in the interior construction. The tank and bowl are interchangeable with the previous model.

Availability: This new closet will be furnished in the future on all new orders, or orders now on hand for "B-5140 Duplex." **Manufacturer:** Eljer Co., Ford City, Pa.

DOES NOT STAIN HANDS or FIXTURES

Take a tip from other master plumbers and use Rutland Pipe Joint Cement on every job. It seals joints tightly—lasts indefinitely—yet always leaves pipes easy to disjoin. Legal for use in all cities because no toxic ingredients. Remains soft in can.

Mail post card for free sample. Rutland Fire Clay Company, Department D-9, Rutland, Vt. Also makers of Rutland Retort Cement, Furnace Cement, Asphalt Paint, Concrete Patcher.

He Means ME!

Every man moves in his own world. And it's a "he-didn't-mean-me" kind of world. That's my world. It's yours. It's everybody's. And that's why it takes such tremendous blasts of publicity to get us—individually—stirred up. In all of the appeals—by radio, newspapers, posters, speakers—Uncle Sam is talking to ME, Mister! and to YOU! Uncle Sam means *both of us.*

Let's forget the obvious things we've all done. What have we done, what are we doing about those obscure opportunities to conserve, which will mean so much to wartime needs this Fall and Winter?

What are you doing to relieve freight congestion? Have you put in your winter fuel? Coal and oil on hand now, won't tie-up transportation a few months hence when every last car must be available to the Army and Navy and to Industry serving those forces.

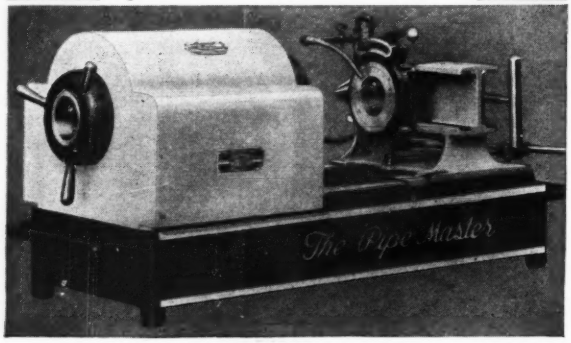
What are you doing to maintain the health level during the Fall and Winter in the properties you own or manage? A properly heated building will help keep its occupants all strong to do the imperative jobs—to increase production. Are the heating systems in your factory or other buildings "tuned-up?" Will they provide proper heat on the very least amount of fuel? It's imperative that fuel be conserved.

A Service to help you

As a Service—to help you conserve—we have listed a number of simple ways to reduce the quantity of fuel you must use to maintain proper heating temperatures. We will be glad to mail you a copy of "A Wartime Check-Up of Steam Heating Systems," and in addition we offer you the counsel of our nation-wide organization of trained Sales Engineers who will be glad to confer with you, your architect or consulting engineer. This is a service we are glad to extend in recognition of our responsibility towards Victory and Peace.

"Dunham Heating Service" is available through the telephone to more than 60 cities, or by correspondence to C. A. Dunham Co., 450 E. Ohio St., Chicago.

DUNHAM HEATING SERVICE



"PIPE MASTER"

PORTABLE PIPE MACHINE

Not only do you get clean cut threads with the *"Pipe Master"* but you roll up time savings that pay for the machine in a relatively short time.

Compared with hand threading, the *"Pipe Master"* saves from 1 minute, 36 seconds on ½" pipe up to 6 minutes, 18 seconds on 2" pipe. Stock as short as 2½" can be held and threaded. Many other important advantages.

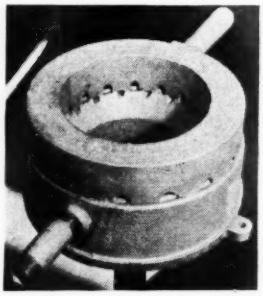
Write for the complete facts about the Oster "Pipe Master."

THE OSTER MANUFACTURING COMPANY
2045 EAST 61st STREET • CLEVELAND, OHIO, U.S.A.

OSTER Speeds up PIPE THREADING

Stoker

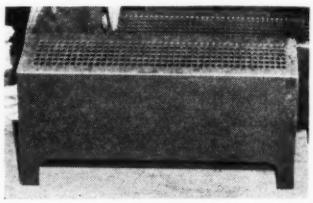
The water-cooled burner pictured here, the manufacturer states, is but one of several



new and exclusive features incorporated in a recently introduced automatic stoker. **Listed Features:** Other features include what is known as dual-heat extraction because the water that is circulated in the cooling operation is itself heated and returned to the boiler—thus providing an additional or inner-fire heat extraction which aids in reducing smokestack heat loss to a minimum. Also listed as an exclusive innovation is a draft device which is designed to give a whirling or rotary draft—inside and outside the burner—which results in increased combustion efficiency. **Manufacturer:** Muncie Gear Works, Muncie, Ind.

Cabinet Convector

In keeping with WPB's suggestion to conserve critical materials, a new non-metallic cabinet convector has been perfected to be used in place of conventional radiation, with a resultant saving of metal for war production—the amount of metal used being equivalent to 1/5 of that used in an ordinary radiator. **Listed Features:** Available in



two types—the wall suspension and free standing floor types—this cabinet convector is constructed entirely of non-metallic materials, with the exception of the screws.

IN NEW BUSINESS . . . REPLACEMENTS

AMERICAN *"Everlast"* PLASTIC TANK FLOATS *and* FLUSH ELBOWS

TOUGH RESISTANT American Molded Plastic now replaces metal and rubber with *amazing new advantages!* Gives longest service.

CORROSION-PROOF
LEAK-PROOF

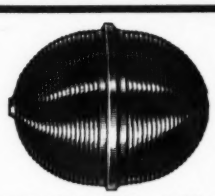
•

American "Everlast" Plastic Floats and Elbows withstand salt-water, brine, sulphur, iron, any water content. Invincible to electrolysis. *Not substitutes—but definite improvements.* Write for folder. Order from your wholesaler.

WHOLESALERS
Get samples and prices.

PLUMBERS
Order from your jobber. Ask for new circular.

Sales Representatives in Principal Cities.



AMERICAN Tank Float
Light, buoyant! Two sizes: 4" x 5" and 3½" x 4½". Packed in bulk, or one doz. attractive display carton.

AMERICAN *One-Piece* Flush Elbow

White, 2" x 4" x 6" and 2" x 5" x 7". Easily cut shorter on job. Available with or without plastic slip nuts and rubber gaskets.

AMERICAN MOLDED PRODUCTS SALES CO.
1752 N. HONORE ST. CHICAGO, ILL.

Side and top panels are fabricated from rigid fiber board, with supporting parts at the corners made of hard wood. The element of these convectors is constructed of steel fins and tubes. Circular designed grilles are punched in the sloping tops of both cabinets.

Manufacturer: The Trane Company, LaCrosse, Wisconsin.

Closet Partitions

Replacing the critical metals

formerly used in partitions for factory installations, the new fir plywood panels have been developed as a successful substitute. Eliminating the need for designing and building up partitions on the job, these panels are all ready to be bolted into place quickly and easily.

Listed Features: These new partitions come in two types —the flush style which uses metal only for the hardware (hinges, latches, handles and floor fittings), and the panel style which has metal posts and headrail. They are supplied complete with all fittings, finished, if desired in grey or white enamel. It is stated that these partitions save valuable time in installation and make important savings in cost.

Availability: Standardized models and mass production, assures timed delivery in any quantity, when and where needed.

Manufacturer: Milwaukee Stamping Co., Milwaukee, Wisc.

Safety Control

A safety device known as "L404A Pressuretrol," for manufacturing plants . . . especially those located in

Kennedy
Bronze Screwed
Pipe Fittings

A Kennedy Extra-Value Product

Here are fittings that are worthy of the finest jobs, yet sold at the same price as ordinary brass fittings. They are made of the same true bronze used for Kennedy Bronze Valves, with sturdy attractive proportions, and each fitting is individually tested with air pressure under water. Furnished rough, finished, and nickel or chromium plated, in all standard types and sizes. Obtainable at your supply house.

THE KENNEDY VALVE MFG. CO., ELMIRA, N. Y.

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

BUY KENNEDY PRODUCTS FROM YOUR WHOLESALER

McDONALD
FARM WATER SYSTEMS

SERIES 420 . . . FAMOUS McDONALD SHALLOW WELL AUTOMATIC WATER SYSTEMS

ON THE FARM Front!

Extra Stamina! Extra Dependability! That's why McDonald Water Systems rate so high on farms these days. Farm men and women have no time to waste. They are in the midst of the greatest food production program in all history. Abundant, reliable running water as supplied by a McDonald System is a VITAL NECESSITY to meeting expanded livestock, milk, egg and crop quotas.

McDonald dealers, with the complete McDonald line of modernly engineered Shallow Well, Deep Well and Hydro Jet Systems and with a name that has stood for fine quality for 86 years, have and will continue to secure an IMPORTANT share of the farm Water Supply System business in America.

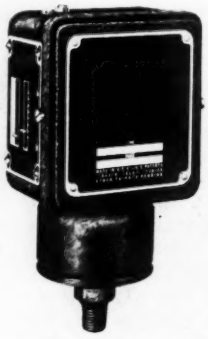
A. Y. McDONALD MFG. COMPANY
DUBUQUE, IOWA

SERIES 400 AND 600 McDONALD DEEP WELL SYSTEMS
Leaders in advanced engineering. Unit construction with completely accessible mechanism.

areas where bombing might be expected to occur . . . has recently been developed.

Listed Features: The product mentioned above is a pressure controller which may be located anywhere in the plant most convenient for the person responsible, and which sounds an alarm bell when the water pressure drops below the safety mark. This is necessary, the manufacturer explains, in plants where water is used for cooling purposes and a drop in pressure may cause damage; and also in cases of pressure drop caused by aerial bombs or sabotage.

Manufacturer: Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

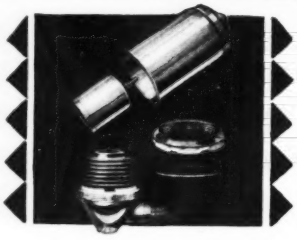


Toilet Seat

Pictured here is a product which is designed as an alternate for black hard rubber toilet seats which may no longer be manufactured because of Government restrictions on rubber.

Listed Features: Described as "not a substitute, but actually a great improvement over the hard rubber finish formerly available," this seat is said to have all the advantages of hard rubber . . . beauty of finish, toughness and permanence. Fabricated of a molded plastic called "Mol-Tex," the manufacturer stated that because this new

OLD VALVES MADE NEW



...if they are

VENT-RITE

Repairable Valves

In addition to the fact that they may be readily taken apart, cleaned, and reassembled, Vent-Rite Valves may be submitted to the factory for the replacement of damaged parts.

This result of Anderson Engineering and Anderson foresight is a major contribution to the solution of heating problems and war conservation.

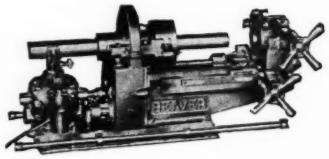
ANDERSON PRODUCTS INC.

17 Tudor Street **Cambridge, Mass.**

AN ANDERSON PRODUCT

BUY U.S. WAR BONDS

The A-B-C of Pipe and Bolt Machines

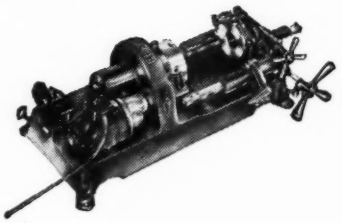


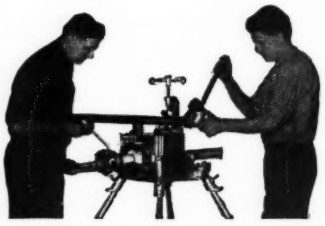
Beaver Model-A

A high-speed heavy-duty deluxe Pipe and Bolt Machine. Range ⅛ to 2-inch —up to 12-inch with geared tools and drive shaft. Bolts, ¼ to 2-inch. Wt. 415 lbs. Ask for Bulletin-A.

Beaver Model-B

A compact utility Pipe and Bolt Machine combining many features of Model-A with the easy portability of Model-C. Range ⅛ to 2-inch — up to 8-inch with drive shaft and geared tools. Bolts up to 1½-inch. Wt. 280 lbs. Ask for Bulletin-B.





Beaver Model-C

A sturdy little Power Unit

Converts Hand Pipe Tools into Power Tools from ⅛ to 8-inches. Threads 8-inch in 6 minutes. Threads bolts up to 1½-inch. Equipped with automatic chuck wrench ejector — a safety feature. Two men can use it at the same time without interference. Easily portable — weighs about 150 lbs. Write for Bulletin-C.

BEAVER PIPE TOOLS

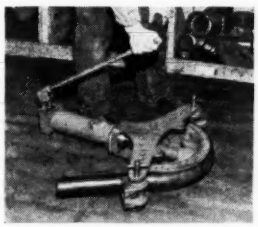
942 DOME AVE. WARREN, OHIO

product is equal in appearance, strength, durability and sanitary features to hard rubber, it can be recommended, specified and sold with utmost confidence.

Manufacturer: C. F. Church Mfg. Co., Holyoke, Mass.

Portable Pipe Bender

A material, time, and labor-saving device—this portable hydraulic bending machine can be set up in a minimum amount of time. It requires



no bolting, bench or table, and can be easily operated.

Listed Features: It will bend, without heating and without filling, all iron and steel pipe, as well as solid bars of mild steel from 3.8 to 20 in. in 3 minutes or less. It is reported that, bending pipe in one simple operation, this machine produces bends that are uniform . . . without kinks and without wrinkles. It avoids the possibility of leaky joints and reduces friction losses by producing smooth bends. It is said to require only seconds to mount and demount. For convenience in carrying, all parts are completely housed in a permanent wooden box.

Manufacturer: Tal's Prestal Bender, Inc., Milwaukee, Wisconsin.

Shipping Container

Developed as an aid to oil burner service organizations in shipping pumps and fuel units for rebuilding, this container performs a "double" duty. That is, one side of the reversible top is addressed to Sid Harvey, Inc., and the other side is addressed to the dealer, so that the dealer has only to reverse the top and it is ready for shipment.

Listed Features: Of strong wooden construction, the box has been specially designed with a center piece that will hold securely a pump and

YOU CAN'T WIN A WAR WITH SHOWER HEADS

A few months back we made the finest shower heads in America. – And faucets. – And traps, too. The best line of plumbing supplies anywhere! But with a war on our hands brass fittings aren't quite so essential. Uncle Sam needs copper and brass. Old fixtures will have to do a little longer . . . But once America's industrial might rolls up full strength behind our armed forces and those of our Allies, we will win this war – and then – comes PEACE. Then is when we will throw our regular plumbing production into high gear – to give YOU the greatest quality brass goods made – MUELLER BRASS GOODS. Then we will say, even as we do now, "Thanks a lot," for standing shoulder to shoulder with us in this common cause in order that the victory might be ours.

Dept. P-13

MUELLER CO. DECATUR, ILL.

WATER SYSTEM DEALERS
NEW, FREE "SERVICE CARDS" BUILD PROFITS, GOOD WILL
YOUR WATER SYSTEM WILL GIVE YOU YEARS OF TROUBLE-FREE SERVICE
IF You Give It Reasonable Care and Attention
1. GLAND ADJUSTMENT
2. PLUNGER LEATHERS
3. WIPER GLAND
4. VALVES
5. BELT TENSION
6. LUBRICATION
4 WAYS TO PROFIT!

Whatever line of water systems you handle, you can profit by ordering a free supply of these new Goulds "Service Cards" today. These 4-page cardboard folders, made to hang up near pumps, tell owners how to care for shallow well water systems properly—how to make them perform better, last longer. While referring to Goulds "CID" Pumps, they are good for any make of reciprocating pump.

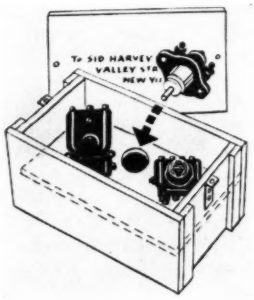
1. Here's something tangible and helpful to GIVE your customers and prospects NOW —a sure good-will builder.
2. By imprinting your name and address in space provided, each card becomes a valuable advertising piece that will be kept.
3. When you give cards to water system owners, ask them about service needs—an easy way to find profitable repair and maintenance jobs.
4. Get names, addresses when you give out cards—to build your prospect list.

2624

GOULDS PUMPS INC.
SENECA FALLS, N.Y.
ATLANTA BOSTON CHICAGO HOUSTON NEW YORK PHILADELPHIA PITTSBURGH TULSA Representatives in all Principal Cities

Goulds Pumps, Inc., Seneca Falls, N. Y.
Send immediately..... shallow well Service Cards (initial order limited to 100 of each) absolutely free and without further obligation.
Company Name.....
Individual Name.....
Title .....
Company Address.....
City..... State.....

two fuel units, of standard make, to insure safe transportation. The dealer has only to insert the pumps, fill in the extra space with newspapers, screw on the reversible top and it is ready for shipment.



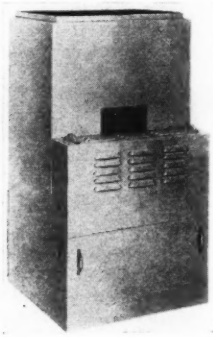
Availability: The use of this box is being offered free to any organization that will send them two units for rebuilding.

Developed by: Sid Harvey, Inc., Valley Stream, N. Y.

Winter A. C. Unit

With the particular idea in mind of furnishing the trade with equipment to be used in defense housing, this manufacturer is introducing its new model 513, a gas-fired winter air conditioning unit which is pictured here.

Listed Features: It is stated that this unit uses a ribbon type of burner suitable for manufactured, natural, and mixed gas, and is also available without the centrifugal blower for use as a gravity furnace. The heater is shipped as a package and, according to the manufacturer, uses a minimum of floor space.



Manufacturer: Viking Mfg. Co., 1234 Ray St., Dayton, Ohio.

Your neighborhood sure needs you now!

"I'm phoning to tell you, Mr. Plumber, how much the wife and I appreciated your help in our recent dilemma."

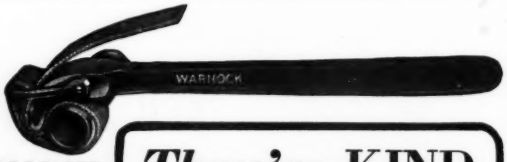
WAR TIME restrictions on the ready availability of plumbing fixtures and materials result in an ever increasing dependence by property owners upon your skill and ingenuity. Your repair and maintenance business is, or should be, more extensive now than ever before—if you are alert to your community's needs. And, as you know, there are ratings under which faucet sales and installations are permissible under the rules of the War Production Board.

All deliveries are subject to the rules and regulations of the War Production Board, Division of Priorities.

Now, more than ever, it is important that you install Chicago Faucets when available in such circumstances. For Chicago Faucets are lifetime faucets, easy and inexpensive to maintain in perfect operating order.

THE CHICAGO FAUCET CO.
2712 N. Crawford Ave., Chicago

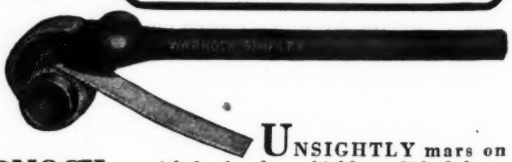
CHICAGO FAUCETS
Last as Long as the Building



WARNOCK WRENCH

Improved type. Drop forged shackle. Strap has three wearing positions. Simple to adjust. A tool for the man who has constant use for a strap wrench.

***They're* KIND *to* POLISHED PIPE AND TUBING**



WARNOCK SIMPLEX WRENCH

Simplest of strap wrenches. Consists of a handle, strap and wedge. Both ends of strap can be used for double wear. This tool is for the man who has only occasional use for a strap wrench.

UNSIGHTLY mars on nickel plated or highly polished brass pipe and tubing can ruin the appearance of the finished job! Handle this type of work quickly and easily and, at the same time, protect it throughout installation with a WARNOCK Strap Wrench. Soft strap contact will not scratch . . . curved nose eliminates crushing. Unbreakable handle, finished in enamel, always looks new.

Order one or several WARNOCK Strap Wrenches from your wholesaler today.

Warnock Mfg. Co., Worcester, Mass.

News of Sales Aids

Conservation Aids

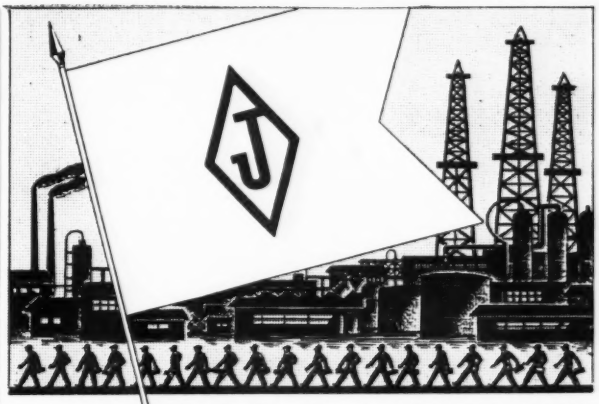
Type of Literature: Small, two-color envelope stuffer. **Purpose:** This folder has been prepared, the manufacturer states, for the purpose of helping the oil burner industry get repair work before the heating season. **Features:** Illustrated and described in the pamphlet are heating accessories which are said to aid in the conservation of fuel and the protection of equipment. **Issued by:** Sid Harvey, Inc., 104 East Mineola Ave., Valley Stream, N. Y.

Vitreous China

Type of Literature: A spiral bound catalog with a simulated leather cover. **Size:** Nine by 11 in.; 22 pages. **Colors:** The book is composed of loose-leaf sections each of which is printed in a different color. **Features:** An extremely interesting section of the booklet is the first part which describes in considerable detail the various processes which make up the whole vitreous china art. Photographs illustrate this section to good advantage. The remainder of the catalog tells about the particular products in the company's line. Each fixture is illustrated and roughing-in dimensions are pictured in drawings. **Issued By:** Mansfield Sanitary Pottery Company, Perrysville, Ohio.

Welding Posters

Type of Literature: Six posters bound into a 14-page booklet but perforated so that they can be detached and posted on shop bulletin boards. **Purpose:** The bulletin . . . which bears the title "Make 3 do the work of 4" . . . is designed to help the user of welding electrodes to cut down his consumption of them and thereby conserve

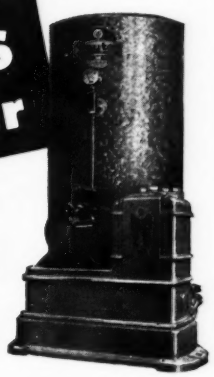


★ ★ ★ OUR BANNER'S IN THE BATTLE LINE

Our men are in the war, an army in overalls, doing their part to back up our armed forces with the mighty strength of American productive capacity . . . In the meantime we are doing our best to serve our regular customers . . . If the service isn't up to peacetime standards, we know you'll pardon us. There's a job to do, a big job—and we are helping to do it.

JARECKI MANUFACTURING Erie, Pa. COMPANY

MORE food with LESS man power with DAYTON WATER SYSTEMS



WORLD'S LARGEST MANUFACTURERS OF AUTOMATIC ELECTRIC WATER SYSTEMS

With more food needed and labor scarce, a water system is a vital necessity on every farm. You contribute directly to the victory program when you sell Dayton Life-Long Water Systems to your farmer customers. And you are helping out, too, when you keep existing equipment running. Anticipate needs for spare parts and order early so you may avoid any shortage of parts.

THE DAYTON PUMP & MFG. CO.
DAYTON, OHIO

WATER SUPPLY SYSTEMS · Dayton · WATER SOFTENERS

LIFE-LONG WATER SYSTEMS

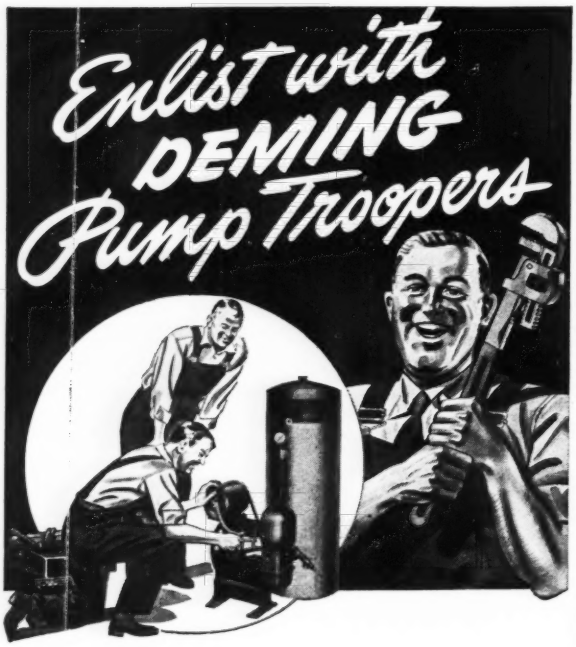
the critical materials necessary to their manufacture. **Features:** Each poster illustrates a common wasteful practice in welding, then shows the corresponding proper practice for conservation and points out the ease and simplicity of doing the job the right way. **Issued by:** Air Reduction Sales Co., 60 East 42nd St., New York City.

Operation Hints

Type of Literature: Recently released is a 12-page operating practice manual called by the manufacturer "101 Suggestions for Good Operating Practice" and designated as Form PP-9A. **Purpose:** It is stated that this booklet was designed to help get maximum production from equipment and eliminate unnecessary shutdown. **Features:** Outlined in tabular form are many practical suggestions for lengthening the life of packings, insulations, roofings, friction materials and refractory products. Under the heading of Good Practice for Using Insulations is a table showing examples of unit losses and savings made by insulation. **Issued by:** Johns-Manville, 22 East 40th St., New York City.

Arc Welding

Type of Literature: Seventh edition of "Procedure Handbook of Arc Welding Design and Practice" . . . 1,308 pages . . . 6x9 in . . . 1,810 illustrations, including photographs and drawings . . . gold-embossed, semi-flexible simulated leather cover. **Purpose:** The immediate purpose of this manual is to help speed up war production by furnishing welders as much complete and up-to-date information on modern welding methods as possible. **Features:** The book contains new information on such subjects as welding symbols, new allowable stresses, speeds and costs, pre-heating for welding, stress relieving, etc. **Price:** Postpaid United States, $1.50 per copy; elsewhere $2.00 per copy. **Issued by:** The Lincoln Electric Co., 12818 Coit Road, Cleveland, O.



Your Farm Customers Need Your Assistance

RUNNING WATER is doing a vital wartime job! Untold millions of hours are saved by farm pumps and water systems. Equally important is the increased farm yield made possible by RUNNING WATER.

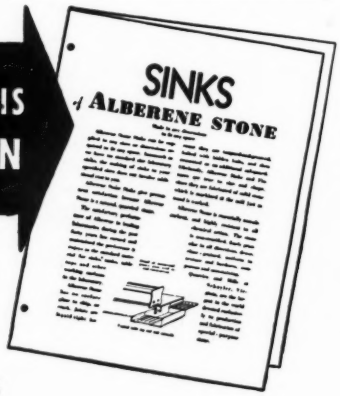
Deming Dealers who help farmers keep pumps and water systems in action during this crisis are performing a service vital to the war effort. That's why we call such Dealers "DEMING PUMP TROOPERS!"

This is not only *PRACTICAL PATRIOTISM. It is far-sighted business judgment!* Many farm customers you help *NOW* are A-1 prospects for *NEW* Deming Pumps and Water Systems in the *FUTURE!* And that *FUTURE* may not be so far away. LET'S GO! *KEEP 'EM PUMPING!*

THE DEMING COMPANY • SALEM, OHIO

DEMING
FARM WATER SYSTEMS
Keep 'Em Pumping

SEND FOR THIS BULLETIN



AVOID DELAYS IN SHIPMENTS

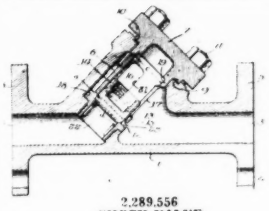
We can ship Alberene Stone Sinks of *any* dimensions to fill any desired spaces promptly after receipt of your order . . . provided that you give us *complete* details as to inside or outside dimensions, openings, etc. To avoid annoying delays, use the blank forms that come with the Sink Bulletin. They simplify ordering . . . and will speed up delivery. Drop us a post card today . . . just say, "Send me Sink Bulletin and order forms." Alberene Stone Corporation of Virginia, 419 Fourth Avenue, New York.

ALBERENE
STONE SINKS • TRAYS

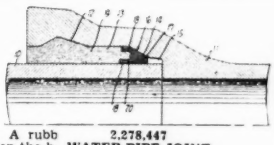
News of Patents

2,289,556. Check Valve. Ludwig T. Stoyke, Chicago, Ill., assignor to Crane Company, Chicago, Ill.

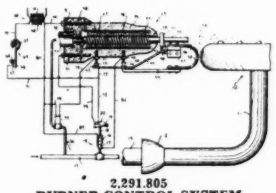
2,278,447. Pipe Joint. Ralph H. Hyde, Campbell, Calif.



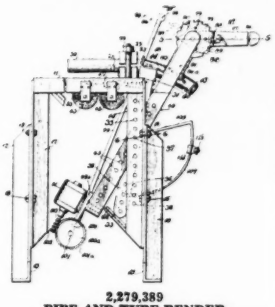
2,289,556
CHECK VALVE



A rubb
en the b 2,278,447
WATER PIPE JOINT



2,291,805
BURNER CONTROL SYSTEM



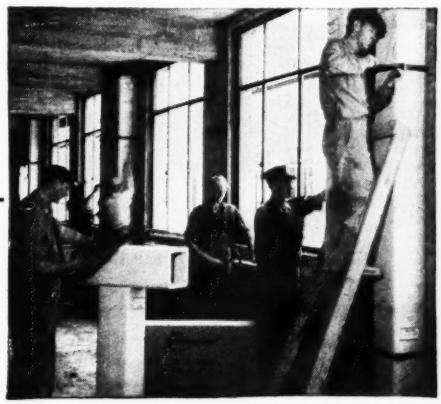
2,279,389
PIPE AND TUBE BENDER

2,291,805. Burner Control System. Frederick S. Danison, Minneapolis, assignor to Minneapolis-Honeywell Regulator.

2,279,389. Pipe Bender. Thomas W. Delaney, St. Paul.

2,286,677. Water Heater. A. S. Greth, Santa Cruz, Calif.

Photograph in this advertisement released by Materiel Div., U. S. Army Procurement Div.



NEW WAR DEPT. BUILDING

"An Air Conditioned City in Itself"

SAVES 1,500,000 POUNDS OF STEEL

with **Careyduct**
THE ALL-ASBESTOS INSULATED DUCT

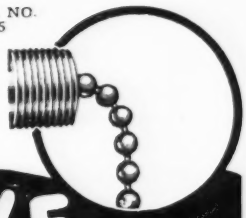
Millions of pounds of steel have been saved by using Careyduct in air-conditioning the new War Department Building at Arlington, Va., and hundreds of other important public and private structures throughout the country.

Made entirely of asbestos, it is a natural sound absorber; hushes equipment noises and metallic "cracking" due to pressure changes or expansion strain. Factory fabrication eliminates costly shop work; saves time, man-power.

To conserve steel—insure better air conditioning—specify CAREYDUCT. Write Dept. 18 for full information.

THE PHILIP CAREY MFG. COMPANY
Dependable Products Since 1873. Lockland, CINCINNATI, OHIO
In Canada: The Philip Carey Co., Ltd., Office and Factory: Lennoxville, P. Q.

U. S. PAT. NO. 2246765



NEW PRINCIPLE!

FLEXIBLE SYPHON

"DROP-BY-DROP" DRAINAGE

EXCLUSIVE FEATURE ON M. S. LITTLE RADIATOR AIR VALVES

Advantages: High thermal efficiency results in definite Fuel Savings—Controlled drainage causes radiators to heat faster — Tamper-proof — Easily installed, no bending or cutting of syphon tube.

M. S. LITTLE Radiator Air Valves with the Flexible Syphon feature, constructed of brass as in former years, available (up to our inventory of these items) to Wholesalers of Heating materials.

Orders for reasonable quantities, based upon past purchases from us, will be promptly shipped.

No. L-50

No. L-25
Straight Shank

No. L-25

Priority Rating of A-10 or better will be required with proper End-Use classification.

MADE BY M. S. Little

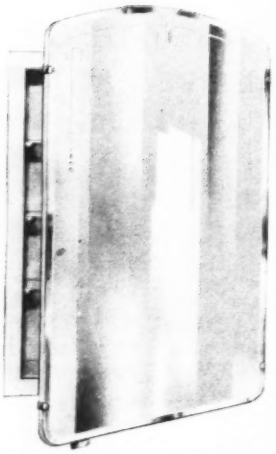
TUBULAR BRASS PLUMBING GOODS — HEATING SPECIALTIES

THE M. S. LITTLE MFG. CO. HARTFORD, CONN. U. S. A.

LAWSON

Will Continue to Offer the Finest Cabinets Available

NOW



For the fifth time in the 126 years of our existence we have pledged our cooperation to an American Victory Program. As a result, the bathroom cabinets we offer today are constructed of wood and other non-critical materials. Frankly, this cabinet is only a substitute. But wait! Don't judge them by the *old-fashioned* wooden bathroom cabinet. Look, for instance, at the illustration of the Lawson *Warwood* cabinet (at the right). When you see one, you'll agree with us that it even looks like steel.

WRITE today for our Wartime price list showing the complete line of Lawson Warwood Bathroom Cabinets.

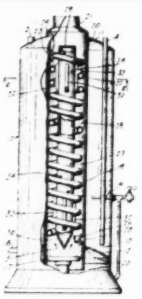
—and in the FUTURE

What will the cabinet of the future be? It will be a cabinet designed for the house of the future and manufactured of the materials best suited to its design. Perhaps it will be made of steel, perhaps of plastics or of aluminum or even of plywood. In any case, it will bear the name of Lawson.

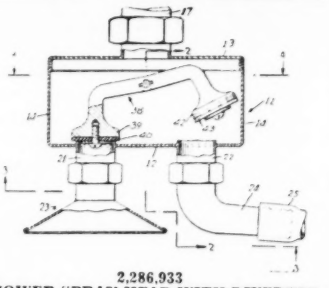
LAWSON
"KNOW-HOW"
is based on
126 Years
of Experience

Lawson BATHROOM CABINETS
126 YEARS OF QUALITY

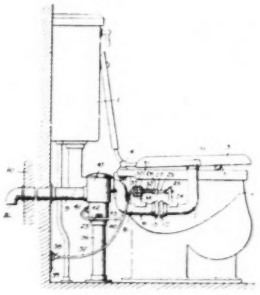
THE F. H. LAWSON COMPANY
Bathroom Cabinet Division
CINCINNATI, OHIO



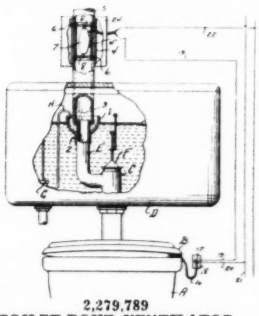
2,286,677
WATER HEATER



2,286,933
SHOWER SPRAY HEAD WITH DIVERTER



2,289,368
DEVICE FOR RENDERING TOILETS ODORLESS



2,279,789
TOILET BOWL VENTILATOR

2,286,933. Shower Head. Solomon Royal, Brooklyn, N. Y.
2,289,368. Device for Rendering Toilets Odorless. John Wesley Kerlin, Trenton, N. J.
2,279,789. Toilet Bowl Ventilator. Harry Jentzer, Chicago.

Only this better **SEPTIC TANK** *has* **ALL THESE FEATURES**

San-Equip

MASTER SEPTIC TANK

Nothing else like it on the market. Easy to sell, easy to explain. Check these 6 exclusive features:

1. Improved top intake.
2. Increased capacity and longer flow with improved septic action.
3. Provides automatic trap and house ventilation.
4. T-type intake allows tank to be set at any angle.
5. ⅓ less dirt to move for excavation.
6. Easy access to tank—intake extension above ground.

WRITE for folder "Safer Sewage Disposal"—gives the facts your customers want to know about septic tanks.

SAN-EQUIP Inc. 786 E. Glen Ave., Syracuse, N. Y.

Put and Take

(Continued from Page 54)

set on and hatch the eggs as they seem to do a better job of it in captivity. This may be deceiving the bantams.

Mr. Hester's "quailry" is quite a collection of brooders, coops, nesting pens, feeding bins and other accessories; in fact, Mr. Hester said he had over $2,000 invested in it. The eggs hatch in three weeks, the birds at first being about as large as one's thumb and as elusive as anybody could imagine. It just about keeps one person busy looking after the birds, feeding and watering them. But they grow pretty fast and it isn't long before they can take care of themselves if released.

OBJ Recommendations

(Continued from page 41)

user who has kept his oil consumption to a minimum by insulating his home, installing an efficient oil heating plant, and keeping it in a clean and efficient operating condition.

"An equitable method of distributing fuel oil must do so in terms of the individual requirements and consideration of steps that have been taken or will be taken to conserve on the amount of fuel used.

"It is our recommendation that the Federal Government undertake an equitable distribution of fuel oil which would involve the following:

"1. An estimate of the probable amount of fuel oil that will be available next winter. This is probably the responsibility of the Office of Petroleum Coordinator.

"2. An order to restrict the deliveries of fuel oil to accomplish the savings required. This is probably the responsibility of the War Production Board.

"3. The rationing of available supplies of fuel oil in an equitable manner upon individual application of users. This is probably the responsibility of the Office of Price Administration.

"A method of distributing oil equitably should be based on minimum requirements after consideration of the following factors:

TURN THE FAUCET
and Watch Sales Resistance Melt

SKY POWER
WINDMILL WATER SYSTEM
PUTS FAUCETS ON THE FARM

THAT faucet contains a bit of magic. It's the farmer's dream. The dream of chores without drudgery . . . water in the kitchen . . . a shower in the bathroom . . . water in the barn. The Monitor Sky Power Running Water System makes that dream a reality!

You know that farmers today have the money to buy! They are doing more than looking and hoping. They're *demanding* the convenience of running water systems . . . to increase production and to save time.

Strike while the iron is hot! Two out of three farms — without electricity — are logical users. Ask your nearest Baker branch.

Monitor RUNNING WATER SYSTEMS
Windmills • Pumps • Pumpjacks • Well Supplies

AUTOMATIC DEEP WELL ELECTRIC
Precision quiet. Easiest to install and service ever designed.

DISTRIBUTED BY
BAKER MFG. CO: Minneapolis, Minn.; Madison, Wis.; Fort Dodge, Ia.; Cedar Rapids, Ia.; Fredericksburg, Ia.; Omaha, Neb.; Kansas City, Mo.; Enid, Okla.; Hutchinson, Kan.; Brandon, Manitoba, Can. AXTELL CO.: Fort Worth, Texas; Amarillo, Texas; Lubbock, Texas; San Angelo, Texas.

BAKER MFG. CO., Evansville, Wis.

Here's Your Modern Plumbing Parts Line

4 STAR
Kampa Plastics

Kampa Plastic Plumbing Parts represent a complete package of plumbing items. They are available at a time when conventional materials are difficult to obtain. . . . Each Kampa part is a definite development and improvement in plumbing application. . . . Kampa Plastic Plumbing Parts replace critical material. They are available for immediate delivery. Each part packed in convenient display cartons.

FLOATS
THE FOUR STAR PLASTIC FLOAT
Standard size, 4"x5". Made of non-corroding, tough, long lasting plastic. A big advancement over metal floats. Sold and recommended from coast to coast.

DRAIN STOPPERS
THE FOUR STAR ALL PLASTIC DRAIN STOPPER
Available in popular sizes. Easily installed. A new, modern, non-corroding stopper that is sanitary and long lasting. Permanent color, matching plumbing ware.

FLUSH ELBOWS
THE FOUR STAR PLASTIC FLUSH ELBOW
Standard sizes. Made of permanently white, dimensionally stable plastic. Nuts and gaskets to match. Makes a permanent, better, cleaner installation than metal elbows.

FLUSH BALLS
THE FOUR STAR PLASTIC FLUSH BALL
One universal size. Made of tough non-water absorbent plastic. Pliable enough to give a permanent water seal. Should many times outlast the average rubber flush ball.

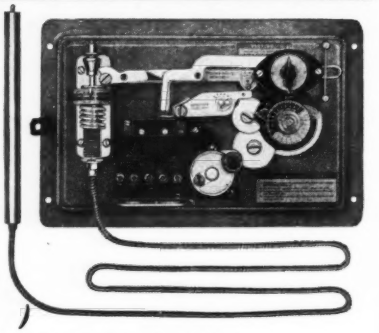
OTHER PLASTIC PLUMBING ITEMS ARE BEING DEVELOPED AND WILL BE ANNOUNCED SOON

NO DELIVERY DELAYS • NO PRIORITIES

KAMPA MFG. CO.
Plastics Fabrication
12132 W. CAPITOL DRIVE • MILWAUKEE, WIS.

YOU and this new MARSH TRI-TROL REGULATOR CAN GO PLACES THIS FALL!

The first fully automatic control by outside temperature



—at LOW COST

HEATING systems must be completely and automatically controlled for the duration, to help conserve America's fuel. In areas where fuel deliveries are already restricted, fuel must be carefully metered to provide maximum comfort throughout the season.

In the Marsh Tri-trol Regulator you have the first practical, completely automatic heating system control for multiple-occupancy buildings—buildings such as stores, offices, apartments and hotels, where an inside thermostat just won't do the job. It is easily installed—controls heating the right way, according to outside weather—insures both maximum fuel economy and maximum heating comfort.

Where sales of other items are curtailed, you can still sell the Tri-trol Regulator—at a profit comparable to that of a stoker or burner sale—*without any need for priority rating.* Where you *can* sell a stoker or burner, a Tri-trol to control it means substantial extra profit.

Mail coupon below for complete details, sales folders, sample mailing pieces—get set to go places.

MARSH TRITROL COMPANY
600 S. Michigan Avenue, Chicago, Ill.
347 Madison Avenue, New York

COUPON BRINGS FACTS

Please send complete details about the Marsh Tri-trol Regulator.

Individual .....

Business .....

Address .....

"1. Oil consumed in terms of the size of the house. A formula for oil consumption in terms of livable floor area has been proposed by Mr. R. K. Thulman, of the Federal Housing administration, which seems reasonable.

"2. Oil consumption in terms of the number of occupants of the house, as a limit.

"3. Restrictions to insure that oil usage will be no greater and probably less than past usage, as a limit.

"4. Relative ease and cost of conversion.

"5. An adjustment of oil allowed to actual degree days.

"6. Consideration of special requirements of invalids, elderly people, etc.

"The Oil Burner Institute respectfully requests that the War Production Board give consideration to the principles of an equitable distribution of fuel oil suggested herein. This Institute would be happy to cooperate in any way possible that would insure an equitable distribution of fuel oil. It is our intention to send you an analysis of the data that we have collected to indicate the savings in fuel oil that would be possible on the basis of rationing on a plan as outlined above."

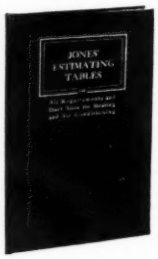
The Institute's Engineering Committee developing the plan is composed of engineers from leading oil heating equipment manufacturers. The committee includes: F. H. Faust of General Electric Company, chairman; William Bulger of Petroleum Heat & Power Co.; J. C. Hauff, Jr., of the May Oil Burner Corp.; H. C. Jones of the Delco Appliance Division of General Motors; J. A. Logan of Gilbert & Barker Mfg. Co.; D. J. Luty of Gar Wood Industries, Inc.; and Milton Powers of the Timken Silent Automatic Division, Timken-Detroit Axle Co.

The Institute's activities in connection with the fuel oil problem began in the summer of 1941, when the first "oil scare" was announced. At that time a comprehensive program of fuel oil conservation, known as the "Save for Defense" program was initiated and has since been sponsored by the Institute and widely used by oil heating dealers in stimulating adjustment and repair of oil burners and heating plants by home owners to save fuel oil.

Fould's Statement

(Continued from Page 41)

keystone of a bonanza. But the job we must do is stimulating home and plant improvements for the conservation of fuel and heating oil. This will create a quick mar-



YOU NEED *this* BOOK

NO MAN interested in forced air heating or air conditioning can afford to be without JONES' ESTIMATING TABLES. This book makes the figuring of forced air heating and air conditioning requirements simple, clear and absolutely certain and eliminates all chance of error or omission. Saves time and effort. Four sets of tables cover every possible condition . . . everything which may have an effect on heating and air conditioning. Can be utilized on ANY system using ducts. Beautifully bound, this book consists of 68 pages, size 6x9. Get your copy. Send your order and your check today. If you are not satisfied, return the book and your money will be refunded. Formerly priced at $2.00 this book has been reduced to... $1.00

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1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS

GET OUR FREE BOOK FOLDER

Your copy of our new free book folder describing thirty-nine outstanding books is waiting for you. Be sure to write for it without delay. No cost. No obligation.

ket, the magnitude of which is anybody's guess. I will wager that most of you have been doing some night work on that little matter, to make sure your prices are patriotically low.

"But the job itself is far more important than any personal balance sheet. Believe me, gentlemen, we've got to secure the homes of families of the east coast against a fuel oil shortage that can mean great distress. . . .

"There is little point in my discussing fuel conservation feasures with you. You are the men with the 'know how' to analyze, recommend and install the right conservation elements for the national advantage of the individual consumer. Go to it. Convert it or unconvert it. Almost every home is a prospect for your art, your ability and your products."

Space Heaters

(Continued from Page 53)

tic space heaters calling for the use of fuel oil or gas, except to fill orders for the Army, Navy, Coast Guard, Maritime Commission or War Shipping Administration.

Included are circulating heaters, radiant heaters, direct fired gas unit heaters, and floor and wall furnaces. It is estimated that manufacturers and dealers have 200,000 oil heaters and 300,000 gas heaters on hand.

Fuel . . .

(Continued from Page 40)

in fuel oil this winter. Additionally, they laid down a program of inter-departmental cooperation between their two offices.

On August 21, Donald Nelson appointed three men—Under-Secretary of War Patterson, Secretary of the Interior Ickes, and Price Administrator Henderson — to serve as a committee to determine what method of rationing should be used.

On August 8, Mr. Ickes advised consumers to accept suitable alternative sizes of coal instead of rigidly speci-

SEAL EVERY JOINT WITH KEYTITE

There is no humor, today, in anything that interferes with home routine under war conditions. Time-stealing costly leaks disrupt your customer's activities as well as your own.

Switch to Keytite *now* for sealing all thread and gasket connections on lines to carry water, low pressure steam, compressed air, etc. Find out now how Keytite will help you keep your Pledge of Patriotic Action, particularly points 3, 4 and 5. Write for literature and *Free* Sample today.

Economical because of greater coverage—and leak-proof seal the first time. Does not freeze connections, checks corrosion at joints . . . contains no lead substitutes.

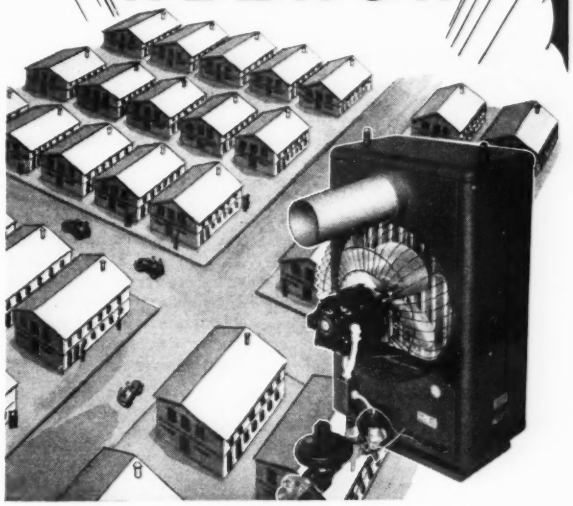
Write for Free Sample

KEY COMPANY

2661 McCasland Avenue

East St. Louis, Illinois

THE MOST HONORED UNIT HEATERS ARE REZNOR



Selected for 165 Training Stations To Meet 3 Vital Requirements . . .

The circumstances surrounding the selection of Reznor Unit Heaters for 165 camps are important. Groups of able engineers, architects, and contractors in charge of construction of Army and Navy stations, selected the make of heaters they preferred for their own projects. The decisions were supported by their broad experience and technical heating education. The fact that practically all of these well qualified groups preferred Reznor Gas Fired Suspended Unit Heaters certainly brings honor to the product. The selections of Reznor Heaters were based upon the same three vital requirements which also interest war production industries: long and dependable OPERATION, broad HEAT DISTRIBUTION, and quick INSTALLATION with savings in cost, labor, and vital materials. Write today.

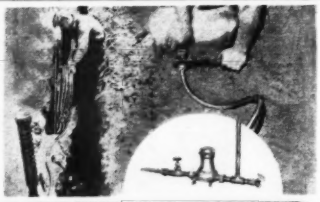
REZNOR

REZNOR MFG. CO., 300 James St., Mercer, Penna.

"GAS HEATERS EXCLUSIVELY SINCE 1888"

ECONOMICAL..ENDURING..TROUBLE-FREE..

MAIN to METER WATER SERVICE



ASARCO TYPE K TUBE-LOY and GRINNELL SUPERSEAL FLARED TUBE-LOY FITTINGS

PUBLIC Utilities, Departments of Water Supply and Plumbing Contractors should not be concerned about the availability of water service pipe and fittings. And there is no reason why they should resort to the use of pipe and fittings unsuited for underground use. Asarco Type K Tube-Loy and Grinnell Superseal Fittings are widely recommended for this service. And they can be purchased freely for prompt delivery. These products, widely employed throughout America prior to current shortages of vital materials, will simplify and solve your Main-to-Meter water service problems

Write either Company for complete information today!

AMERICAN SMELTING and REFINING COMPANY
Lead Products Division
120 BROADWAY NEW YORK

GRINNELL COMPANY
Superseal Division
PROVIDENCE, RHODE ISLAND

fying particular sizes.

On August 1, the Plumbing and Heating Branch asked home owners to take particularly good care of their stove pipe used last season.

On August 21, it was announced that governors in the eastern states are pushing the conservation and conversion campaign.

On August 14, the Office of Defense Transportation commented favorably about its "solid train" method of moving the needed oil to the east coast.

On August 10, users of midwestern coals were advised to increase shipments immediately wherever possible, "as a war-time measure and to protect themselves against growing uncertainties as to the ability of midwestern mines and carriers to meet peak fuel demands this fall and winter."

Danielson Says . . .

(Continued from Page 39, Col. 3)

operator. While a great many people will run through the instructions without much seriousness at the present time, it will be well to caution them to preserve the information for when they begin to get cold, we can rest assured that the instructions will be read more carefully and followed implicitly. The value of bomb shelters was not appreciated until the air raid occurred.

"Since coal must largely displace oil in many cases, the quality of the coal must be kept as high as possible, considering the practicalities of the situation. This improved quality must start at the mine. Inspection must be thorough so that the ash content must be kept low. If that is not done, transportation will be wasted and the efficiency of the furnace will be materially reduced. Reputable coal operators have systems that insure the improvement in quality, but unfortunately there are still miners who figure that slate adds weight and will bring in more dollars for the same transportation and labor effort. It takes an experienced person to judge the amount of slate in coal and if the bin is filled in the fall as it should be, then there is little that can be done. I have had personal experience in

No More Damage from Condensation or Sweating Pipes, Tanks, Walls, Ceilings and Air Ducts

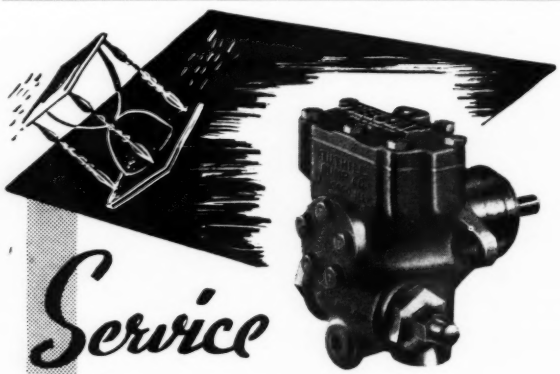
NO Drip **A SURE CURE**

This sensational plastic cork coating is easily applied with brush, trowel or spray to metal, concrete, brick, wood, plaster or composition surfaces. Insulates and prolongs life of pipe and other metal by preventing rust and corrosion.

Produces a permanent, stucco-like finish that requires no maintenance. Can be painted any color. A gallon covers about 30 ft. 1" O. D. pipe. Comes in 1, 5 and 55 gallon drums.

Order from your supply house or write for circular.

J. W. MORTELL CO., 504 BURCH ST., KANKAKEE, ILL.



Service **MUST BE DEPENDABLE, *Too!***

Under existing shortages, it is imperative that Tuthill Pumps and Fuelstats be kept running like new. That is why Tuthill has developed a dependable wartime service plan which assures prompt, economical handling of pump repairs or reconditioning. Here's a service you can count on, available at our authorized service stations or at the factory.

Write for Details

TUTHILL PUMP COMPANY 939 E. 95TH ST., CHICAGO, ILLINOIS

buying large quantities of coal, and I know that this proper inspection at the source is fundamental. Some dealers are none too careful in their storage operations, and will bear watching.

"It is hoped that this war situation will not discourage smoke prevention measures. Firing that secures efficient combustion reduces smoke and there is, consequently, an incentive to better the stoking. I believe this point should be stressed in the publicity. Almost everyone knows that smoke prevention is definitely connected with better health.

"Hand-stoking and removing ashes that must be carried up a long flight of stairs are distinct advantages that the executive lacking the willpower to take exercise will appreciate. He will also be compelled to develop his ingenuity to find ways to keep clean. Incidentally, a clinker caught in the grates will broaden one's vocabulary. Hand-firing is similar to milking a cow in promoting regular habits. I mention these things to show that there is a little good in everything.

"May I again express appreciation for your leadership in publicizing this important part of the war effort."

W. A. Danielson, Brigadier General U. S. A., Member War Service Committee, ASHVE.

Today's Job . . .

(Continued from Page 39)

tracts for sewerage, piping of any kind, plumbing, heating and electrical. He even sets machinery in industrial plants. He is equipped to handle practically any large type of work which continues to be available. Obtaining work mainly through negotiated contracts, he operates his force ten hours a day, six days a week.

Case 6, Medium City

This contractor has already set his theme for the war period, and this theme is "repair, maintain, patch up, conserve."

His business is about evenly divided between industrial and residential work and he keeps four to six men busy taking care of regular customers only. As the labor

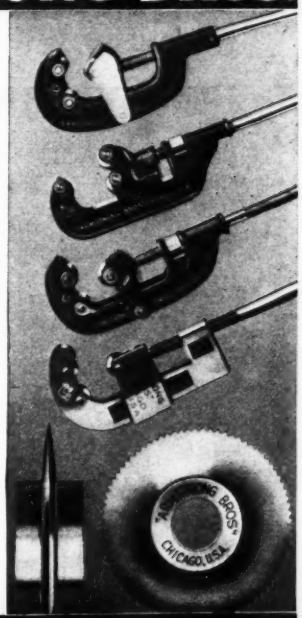
Look for the Arm-and-Hammer

ARMSTRONG BROS.

Improved Pipe Cutters

The Drop-Forged and "Combination" Pipe Cutters can be used as a 1- or 3-wheel cutter. All are improved cutters, accurately made with hardened steel pins and rollers. Thrust rods of "Saunders" type cutter are hardened at the point and bear on embedded, hardened steel block. On "Barnes Type" the thrust is taken up by drop-forged steel section. Parts are interchangeable with other standard makes. All are Cadmium Plated. ARMSTRONG BROS. Knife Blade Cutter Wheels cut much faster and easier, hold their keen cutting edge for they are made of Vanadium Tool Steel, heat treated, hardened, and cadmium plated.

Write today for Catalog P-35, the most complete line of Pipe Tools made.

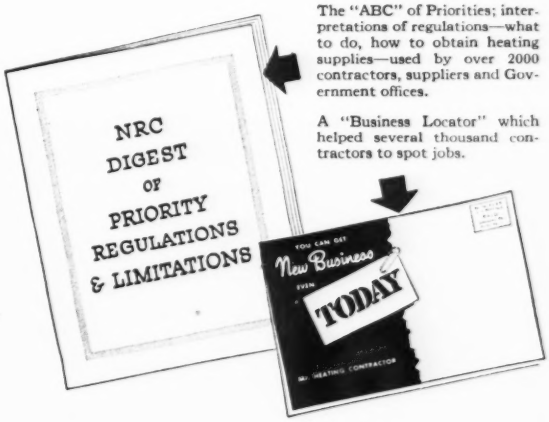


STRONG

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. FRANCISCO AVE. • CHICAGO, U. S. A.

SEND FOR THESE FREE "NATIONAL" BUSINESS AIDS

NEW! Just off the press . . . essential data on heating, condensed for quick reference. Charts, tables, layouts and other information for practical daily use.



The "ABC" of Priorities; interpretations of regulations—what to do, how to obtain heating supplies—used by over 2000 contractors, suppliers and Government offices.

A "Business Locator" which helped several thousand contractors to spot jobs.

"National" is helping heating contractors locate, engineer, and process, wartime contracts. Manufacturing efforts are devoted to heating equipment and war products.

"National" is keeping abreast of today's demands and at the same time is keeping an eye to the future for post war requirements. Today's "Business Aids" will help you now—write for them!

KEEP 'EM FLYING AND ROLLING

then remember the products of

THE NATIONAL RADIATOR COMPANY
221 CENTRAL AVENUE
JOHNSTOWN, PENNA.

100% Employee Enrollment for War Bonds

BUY WAR BONDS FOR PEACE
"Earmark" your investments of Today for purchases after the War

situation eases, he expects again to promote repair and maintenance for new customers.

His principal problem is to make servicing pay, in itself, without benefit of sales profits.

Case 7, Medium City

This heating contractor-dealers, formerly active in new work, expects to base his entire program upon fuel conservation. This well-established heating contractor, operating from a good-looking showroom, has all of the service business that he can handle with his present force, but nevertheless is keeping his name before prospective customers in every way possible. His fuel conservation campaign is now just beginning.

Case 8, Medium City

This firm admirably illustrates—within one organization—the stability which our industry has won through the diversity of its products and services: (1) the company is installing air conditioning and heating in industrial war jobs; (2) the firm is handling boiler work at an explosives factory; (3) the company maintains two trucks with crews for local sales and servicing. A full line of heating products is carried, including boilers and furnaces; stokers, oil burners and gas burners; sheet metal and piping. A satisfactory volume of home heating work is enjoyed with a filter service providing the entree.

Case 9, Small City

This contractor has seen many changes in the score of years he has been in business. He is typical of the contractors handling the very small jobs and he is in position to do installation work himself.

Case 10, Large City

Full-line contractor-dealer with interests in both the industrial and domestic field. Has a very modern establishment and believes in advertising and display. Is considering fuel savings as the theme for his promotion, but has been bothered by his inability

X-PANDO Pipe Joint Compound

ONE FORMULA FOR ALL USES

EXPANDS AS IT SETS— ENDS LEAKS PERMANENTLY

6 FOR ONE ECONOMY— CUTS COSTS BY 50%

IT'S THE EXPANSION THAT CORRECTS IMPERFECTIONS IN THREADS

HOLDS ANYTHING CARRIED IN METAL PIPE

NOT AFFECTED BY VIBRATION; WITHSTANDS DEFLECTION, HIGH TEMPERATURES

Write for Full information about X-Pando Caulking Compound, the perfect compound for sealing ducts in air conditioning systems.

X-PANDO CORPORATION

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Canadian Distributors: LaSalle Products Ltd., 159 Jean Talon St. W., Montreal, Quebec, Canada

In the SPOTLIGHT

TO SAVE EQUIPMENT AND FUEL

BOILER SOLDER SEAL permanently stops leaks in boilers and heating systems and insures their lasting for the duration. The original metallic powder, it goes twice as far as liquids because it gets its liquid from the system itself.

W J BOILER & HEATING SYSTEM CLEANSER removes rust and scale from hot water, steam and vapor systems. Restores original efficiency and heat producing capacity. A clean system lasts longer and uses less fuel.

Sold only through the trade.

RADIATOR SPECIALTY COMPANY

CHARLOTTE NORTH CAROLINA

BRANCHES AND FACTORIES: LOS ANGELES, CALIF. — A SOLDER SEAL PRODUCT — TORONTO, CANADA

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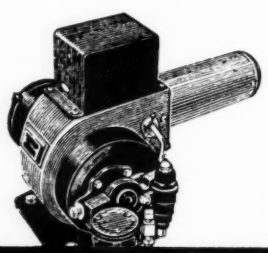
Boiler Solder Seal • W J Boiler & Heating System Cleanser • Adjusto, the direct water heater and booster • Triple Seal Tank Bolts • Golden State Washers • Drain Pep • TiteSeal, the indestructible gasket and joint-sealing compound.

"SUPPLIERS TO UNCLE SAM"

"KNOW-HOW"



● You hear a lot these days about "know-how"... an industry's grand total of specialized experience. Quiet May's total is grand indeed ... reason enough for our vital role in war production. Reason, too, for America's confidence in the peacetime products, past and future, that bear the name of MAY. May Oil Burner Corporation, Baltimore, Maryland.

QUIET MAY OIL BURNERS

to obtain controls. Believes that if he could get this equipment, his central problem would be solved.

Has an average establishment on an important — not downtown — business street. His experience in obtaining journeymen proves the point that the large war jobs draw more men from long distances. At present is able only to take care of regular customers, but is investigating every possibility of jobs which he can handle when labor becomes more plentiful —particularly, service jobs.

Contractor Meetings . . .

(Continued from Page 41)

of contractors. Current problem is how to get in touch with contractors who need the excess inventories of other contractors, it was pointed out. Some members recommended that local associations might serve as a clearing house for this information.

Although the Inventory and Requisitioning Branch of WPB purchases excess stocks in the hands of contractors and dealers, prices paid are usually on a level with junk prices, so members were anxious to develop suggestions which would enable contractors to secure these needed items and sellers to secure fair prices for them.

Another situation which the committee sought to clarify was the question of the disposal of stocks of materials left over from Army and Navy jobs. In many instances, contractors reported, these materials were left lying around after completion of a job when contractors could have used them if permitted to purchase them. In the afternoon the Army sent a representative to the meeting to explain the situation. Such materials, he revealed, were passed on to other jobs, and the Army followed a practice of exchanging lists of left-over materials on all jobs once a week.

How WPB handles compliance cases was also discussed by representatives of the Plumbing and Heating Branch. Contractors declared that on many occasions violations of WPB orders such as L-79 have been reported and nothing more is ever heard concerning the case. The Branch revealed

NO WASTE HEAT Escapes A DRAFT-A-JUSTOR

SAVES 10% TO 20% ON FUEL USED!

STOVE, DOMESTIC COMMERCIAL sizes from 4" to 24" in diameter.
INDUSTRIAL sizes from 24"x 24" to 5'x12'.

For FUEL-SAVING, LABOR-SAVING efficiency so vital in war-time, every oil burner today should be equipped with a Draft-A-Justor! Regardless of outdoor conditions, it automatically maintains constant, correct proportions of oil and air to assure properly BALANCED combustion. Quickly and easily installed on any smoke pipe . . . whether set vertically, horizontally or at an angle. No complicated parts to get out of order! Meets requirements of Underwriters' Laboratories for draft control. Over a million in use today . . . a size for any job! Write for literature and prices.

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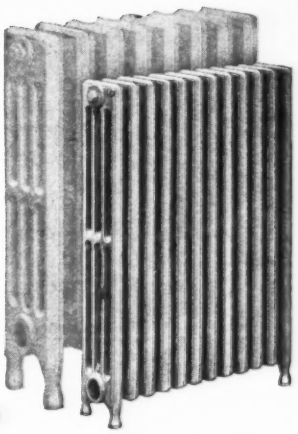
33 West 60th St., New York, N. Y. Boston Office: 839 Beacon St.



Hank Tells How to Save Iron Freight and Shipping Space on Radiators

YOU, or none of us, had any notion there wuz goin' ter be a war when we got the idea for our Slenderized Radiator.

If we had a known, we couldn't of done a better job of saving iron fur yer Uncle Samuel, than we did when not knowing it.

You know well enuff that the Slenderized saves a lot of space when set up. But did you ever stop ter figure out, what the saving means in shipping space and freight costs?

Git out yer li'l ole stub pencil and jist mark these figgers down.

A carload of the old Fero Radiator is only 5500 feet. A carload of Slenderized takes 1100 more feet, or 6600.

It's plain as the nose on the other feller's face, the saving that means. But that isn't all. In these war times, when the railroads are put to it fur cars, such space-saving-bigger-loads, is alfired important. It helps win the war.

You can get the Burnham small tube or Slenderized Radiators in 10 sizes in 3, 4, 5 and 6 tubes. All Slenderized centres are 1¾".

We can make shipments on pretty much all sizes, governed of course by yer Uncle Sam's regulations, of which you already know about.

Burnham popularized the small tube radiator 12 years ago, and fur 8 years our sales have been mainly for them. Which fact tells its own story.

BURNHAM BOILER CORPORATION
Member of Boiler and Radiator Institute
Irvington, N. Y. Dept. U Zanesville, Ohio, Dept. U
Branch Offices in All Principal Cities
Export Dept.: 50 Church St., New York City

Burnham Boiler

WALL HYDRANTS
YARD HYDRANTS
FIRE HYDRANTS
STREET WASHERS
PLUMBING SPECIALTIES
SPECIFICATION DRAINS

When replacements are hard to get the unfailing performance of Kupferle products is proving its value. Today, as for almost a hundred years, the Kupferle policy is, highest quality and all sales through regular wholesale channels.

John C. Kupferle Foundry Co.
ST. LOUIS

KUPFERLE PRODUCTS

Universal ★ *New and Improved*
FLUSH TANK *Lever*

Model No. 1000

- Single Action
- Fits Any Tank
- Quickly Installed
- Low Price

In **appearance**, in **assembly**, in **design** . . . the new UNIVERSAL is streamlined for modern tank installations. Made entirely of die-cast zinc, it resists corrosion and electrolytic action. Has three embossed lift wire openings. Over a half million already in use! See your local wholesale plumbing supply house.

CRAMPTON MFG. CO., HOLLAND, MICH.

★ **SAVE TIME...**
DRILLING ANCHOR HOLES
with **PAINE** "SUDDEN DEPTH" DRILL BITS

★ IN MASONRY AND CONCRETE

Big time and muscle savers that drill 50% to 75% faster than hand-hammered drills, and eliminate wall fractures. Quiet in operation. Ideal for close quarters.

Ask your Supplier and Write for catalog.
THE PAINE CO.
2955 Carroll Ave., Chicago, Ill.
Offices in Principal Cities

PAINE
FASTENING and HANGING DEVICES

The CADWELL Line . . .

★ **FLOOR & CEILING PLATES**
Army-Navy-Maritime and War Shipping Board
★ **RELIEF VALVES**
★ **AIR VALVES**
Priorities Necessary

Recommended by Master Plumbers everywhere . . . for dependable performance.

The **BEATON & CADWELL** *Mfg. Co.*
Established 1894
NEW BRITAIN, CONN.

that a plan is under consideration to tabulate a list of compliance cases at regular intervals, which will contain information giving the number of violations reported, the number investigated, the number of prosecutions and the number dismissed because of proved ignorance of the provisions of the order in question.

Contractors were also instructed in the details of appeals procedure under L-79. The Branch reported that a better understanding of the appeals provisions has lately been shown but that there is still a large segment of the contractor industry which is not familiar with the procedure to be followed.

W. Walter Timmis, chief of the Plumbing and Heating Branch, presided at the morning session and J. T. Kelly, Jr., at the afternoon session.

Mfrs. Committee . . .

The recently formed Plumbing and Heating Manufacturers Industry Advisory Committee met with the Plumbing and Heating Branch September 1 for a discussion of problems currently affecting the industry.

This was the first meeting of the committee as an all-manufacturers group. The previous committee was composed of manufacturers, contractors, and distributors. Each of these groups has now been organized into a separate committee.

Discussion centered on the concentration of industry plan recently announced by Donald Nelson, chairman of WPB.

Eventual application of this program which would set up nucleus plants in each industry is foreseen for the plumbing and heating industry. Discussion brought out that the industry may expect this development upon completion of the present war housing and cantonment building program. Officials expect the concentration of industry program to be adopted in the plumbing and heating industry in from four to five months from now.

Plumbing and Heating Branch executives urge upon the industry to submit a plan for concentration of production within the industry at an early date so that when the time arrives for adoption of this war program WPB will have industry recommendations to follow. If this is not done, officials point out, the industry will have to accept some plan hurriedly formulated by Government economists.

Manufacturers also gave considerable discussion to forthcoming transportation problems. The foundation was laid for the formation of a transportation committee from the industry when each firm expressed a willingness to appoint a traffic man from its own organization for this work.

The new manufacturers committee will meet with the Plumbing and Heating Branch once a month, it was announced

Members of the committee are: Wm. M. Byrd, Jr., president, Alabama Pipe Co., Chicago; J. H. Collier, president, Buffalo; Herbert V. Kohler, president, Kohler Co., Kohler, Wis.; W. K. McAfee, president, Universal Sanitary Mfg. Co., New Castle, Pa.; L. R. Mendelson, president, Hotstream Heater Co., Cleveland; Harold P. Mueller, president, L. J. Mueller Co., Milwaukee; H. M. Reed, president, American Radiator & Standard Sanitary Corp., New York City; E. C. Sammons, vice president, Iron Fireman Mfg. Co., Portland, Ore.; Harold W. Sweatt, presi-

BARBER BURNERS
For ALL Gas Appliances

S-80

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We supply Burner Units to hundreds of leading gas appliance manufacturers. We will design and furnish the proper size burner, with the proper jets, for YOUR appliance. BARBER Burners give complete combustion on natural, manufactured, bottled or Butane-Propane Gas.

Latest Catalog on request.

THE BARBER GAS BURNER CO.
3704 Superior Ave., Cleveland, Ohio

dent, Minneapolis-Honeywell Regulator Co., Minneapolis; Reuben N. Trane, president, The Trane Co., La Crosse, Wis. Crane Co., Chicago; S. T. Reeves, vice-president, Reeves Steel & Mfg. Co., Dover, Ohio; N. J. Higinbotham, president, W. A. Case & Sons Mfg. Co., Buffalo.

Priorities . . .

Washington, D. C., August 11—Two amendments to Limitation Order L-79 were issued simultaneously today by WPB.

The first amendment includes in the terms of the order cooking and baking equipment using coal, oil or gas. Previously, only those types of cooking or baking equipment connected to gas or steam systems were covered.

The other amendment includes the following gas-burning heating equipment in the terms of the order: steam and hot water heating boilers, warm air furnaces, floor furnaces, unit heaters, conversion burners and gas steam radiators.

Washington, D. C., August 18—Manufacturers' price ceilings for vitrified clay sewer pipe and allied products were established today by OPA for the eastern, southern and east central areas of the country.

The order is Document Number 4460, Part 1362 of Chapter XI, Title 32, Maximum Price Regulation 206.

Washington, D. C., August 8—A Steel Recovery Corporation has been organized by WPB to act as agent of the Metals Reserve Company for the purchase and sale of idle, frozen and excess stocks of iron and steel.

It will function in much the same manner as the Copper Recovery Corporation, which is now in the process of channelling millions of pounds of copper into war use.

Washington, D. C., August 25—Amory Houghton, director general for operations, WPB, has announced a new plan for handling PD-25 applications.

Under the new procedure, each application is acknowledged as it is received and the applicant is notified of the serial number of his case and of the branch to which it will be sent for processing.

One copy is sent to the Bureau of the Census, where the indicated total materials requirements will be tabulated in terms of over 200 end product classifications.

Another copy of the application is sent to the branch responsible for processing it, where a tabulation of materials requirements of all in-

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Manufacturers of the most complete line of automatic equipment to control steam from boiler outlet to the return inlet. Also a complete line of traps for all services from 5 pounds to 600 pounds pressure and for superheated steam service. Also compressed air service.

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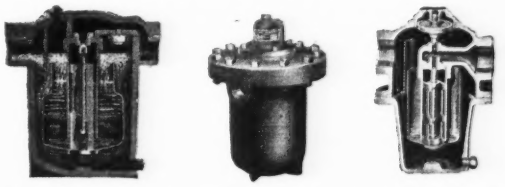

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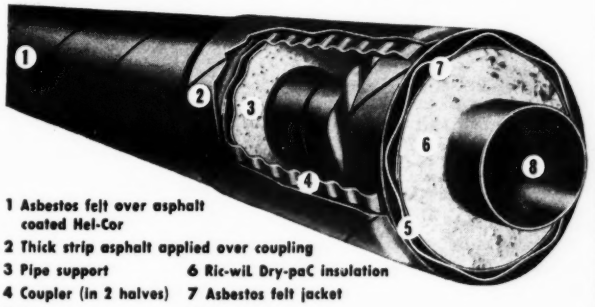

1 Asbestos felt over asphalt coated Hel-Cor
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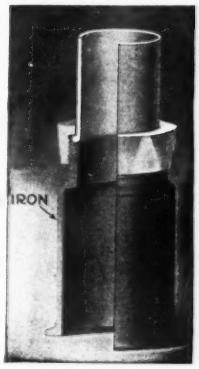

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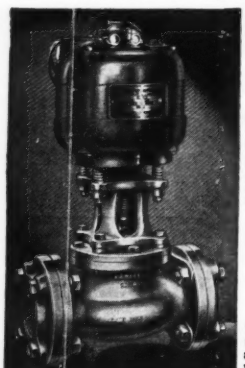

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dustries and companies assigned to that branch will be made.

Both the Bureau of the Census and the various industry branch tabulations will be submitted to the Requirements Committee, together with reports on prospective supplies for the quarter from the Materials branches. The Requirements Committee, under the chairmanship of J. S. Knowlson, WPB vice chairman on program determination, includes representatives of the Army and Navy and other claimants for material.

After examination of the figures, the chairman of the Requirements Committee will determine the general pattern of materials distribution, both in terms of the 223 end products and in accordance with the companies assigned to the various branches, after setting aside a "kitty" for contingencies, readjustments, and for the use of smaller companies not under PRP.

Willard Says . . .

(Continued from Page 39)

in order to ascertain these facts and to check the ways and means for heating buildings more efficiently. Every effort has been made to pass this information on to the public, but with indifferent success. It is human nature to do only what we have to do, even though we know or could find out what we ought to do in a given situation. And now under the grim necessity of war we are being told what we have to do.

"Fortunately, the heating and ventilating engineers and the heating industry are ready to supply the facts and the ways and means to accomplish what has to be done at once, if the national fuel waste in heating buildings is to be materially reduced. I have never seen such a well planned and practical campaign as was launched this past week in the 'War on Fuel Waste' sponsored by the American Society of Heating and Ventilating Engineers and many other agencies. It is designed solely to help every home owner and building operator to save fuel now and in the future by telling him how to improve both his heating plant and his building in accordance with practical present day standards.

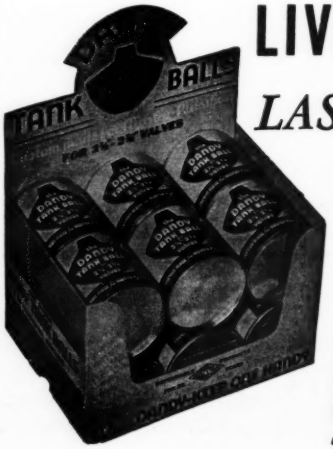
"As a concluding statement, based on my personal experience during many years of research and practice in the field of heating and ventilating, I would like to emphasize one very important aspect of the fuel saving problem, often overlooked. It is this — the condition of the structure or building in which the heating plant is located may be and often is more important in wasting or saving fuel than the heating plant itself. In other words, the most efficient heating unit in the world would consume an extravagant amount of fuel if you tried to heat a barn with it. Furthermore, and this is equally important, in order to heat the barn you would have to use a very large heating unit. All I am trying to say is that the type and condition of the structure itself really determines both the amount of fuel to be consumed and the size of the heating unit which has to be installed."

Dr. A. C. Willard, President, University of Illinois.

Woods' Statement . . .

(Continued from Page 41)

refuse, could easily be saved without undue hardship. Scrap rubber and iron could readily be found and the collection of waste paper was a simple matter. The availability of gaso-



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line is important to many as a means of livelihood but to thousands gasoline rationing only means seeking other ways of pleasure and entertainment.

"However, when the home owner is requested to conserve fuel as a contribution to the war effort, an entirely different picture results. In this case, the health and comfort of every man, woman and child is affected. Lacking the necessary quantities of oil, gas, coal or wood for heating purposes, thousands of homes are bound to be cold next winter. Foresighted planning will avert undue hardships, if everyone will immediately take steps to 'War on Fuel Waste.'

"Four general plans of coping with the situation are recommended. First, in those areas where a fuel shortage is known to exist, it is important for all who can to convert now and burn a more readily obtainable fuel. Second, everyone should take immediate steps to conserve fuel by installing storm windows and doors, applying wall and ceiling insulation, and caulking or weatherstripping wall or window openings. Third, before cold weather comes, have a competent engineer or contractor survey the heating plant and make sure that the boiler or furnace is operating efficiently. Fourth, after winter comes, take every precaution possible to conserve fuel by adopting any one of the several suggestions made by the ASHVE.

"In sponsoring 'War on Fuel Waste' throughout the nation the American Society of Heating and Ventilating Engineers is desirous of focusing attention on the necessity of conserving fuel as a war measure. Every pound of fuel saved relieves the strain on the transportation facilities of the country and allows the more critical fuels to be utilized for the important products of war."

J. M. Service Flag . . .

A service flag for the 1,792 Johns-Manville men now serving in the armed forces of the United Nations, was dedicated by Lewis H. Brown, president of Johns-Manville Corporation at a ceremony held in New York August 24, attended by 800 home office employes. Of the 1,792 men in service, 1,623 are with the American forces and 169 with the Canadian forces.

Draft Deferment . . .

Major General Lewis B. Hershey, director of Selective Service, has emphasized, in a recent release, the employer's obligation and privilege of requesting deferment for men whose immediate entry into the army would slow up war production.

To secure temporary deferments for essential men while in the process of training others to replace them, the employer should know the fundamental principles in the operation of his local Selective Service Board. Investigation of the classification of every man liable for induction should be made. It should be remembered that only in a few rare instances will temporary deferments continue for more than a six-month period. It is a definite duty of the employer to personally know what his manpower situation is, and to fill in Form 42A, obtainable from the local draft board, requesting deferment for essential men in essential occupations. If a man

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•NEW
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Combining efficiency and economy, the new CRAMPTON Flush Tank Lever is made of *unbreakable* rolled stock. No zinc used in the lift arm! No small parts to get out of order! Attractively designed . . . attractively priced . . . the new CRAMPTON is accepted by leading water closet manufacturers for present-day installations.

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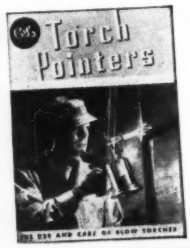

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can be replaced by training another, deferment should not be requested; however, for any man whose immediate going into the armed services would retard production of vital war material or other services essential to the war effort, or who is needed to maintain national health, safety, etc., a request for deferment should be made.

C. E. Construction . . .

Completion of a new manufacturing building of the General Electric Company centers interest on the latest design and construction features of modern industrial buildings directly related to the war effort.

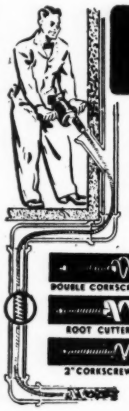
Thoroughness of pre-construction planning and arrangement of services and equipment precluded the possibility of changes during the construction period; this factor was to a considerable degree responsible for speedy progress of work despite delays encountered in obtaining critical materials, it was pointed out.

The office, toilet and wash rooms and substation adjacent to the main manufacturing area have brick walls and concrete floors with tile surface. The building is heated by a low pressure vacuum system, using vertical unit heaters with revolving outfits. These units are mounted above the bottom chord of the trusses about 30 feet above the floor.

Adequate toilet and washing facilities are provided in well lighted and ventilated rooms. As the sanitary sewer of this building and also several other new buildings in the vicinity is below the trunk sewer an automatic Shone type ejector is installed. The ejector discharges the sewage of these buildings into the trunk sewer.

Answer to Fuel Rationing!

If you have not done so, read the outstanding article beginning on Page 62 of this issue.



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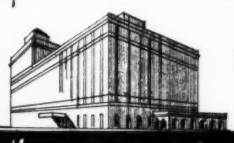

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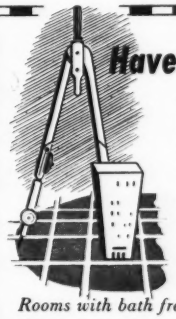

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James M. Carroll—Manager

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